

ORCHIDACEAE SERANENSES

Auctore

J. J. SMITH.

During the time of Prof. Dr. L. RUTTEN's sojourn in Seran with a view of executing geological researches in the years 1917—1919, he has, assisted by Mrs. RUTTEN and a mantri of the Buitenzorg Botanic Gardens, KORNASI, besides brought together a large and interesting collection of plants of this island still so little known in botanical respect. Also in Ambon a number of plants have been collected.

Besides the collection RUTTEN I have taken up in the following enumeration a few Orchids collected by E. STRESEMANN during the II. Freiburger Molukken-Expedition, and I have added some species which have been imported into the Botanical Gardens alive and have come to flower over there.

Apart from the specimens collected in Ambon and a number which were not in a condition good enough for determination, the collection amounts to 130 species and varieties, of which 53 species and 6 varieties are new to science.

56 species are endemic (the varieties being taken as subdivisions of species). In the subjoined list the species belonging to typical Papuan genera or sections are marked with an asterisk.

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| * <i>Aglossorhyncha longicaulis</i> J. J. S. | * <i>Dendrobium taurulinum</i> J. J. S. |
| <i>Appendicula seranica</i> J. J. S. | * <i>woluense</i> J. J. S. |
| * <i>Bulbophyllum bacilliferum</i> J. J. S. | <i>Epiblastus seranicus</i> J. J. S. |
| <i>murkelensis</i> J. J. S. | <i>Eria glabrifolia</i> J. J. S. |
| * <i>Calanthe reconditiflora</i> J. J. S. | <i>malleimentum</i> J. J. S. |
| <i>Ruttenii</i> J. J. S. | <i>murkelensis</i> J. J. S. |
| <i>seranica</i> J. J. S. | <i>piruensis</i> J. J. S. |
| <i>Cheirostylis bidentata</i> J. J. S. | * <i>Glomera lancipetala</i> J. J. S. |
| * <i>Coelogyne calcarata</i> J. J. S. | * <i>plumosa</i> J. J. S. |
| * <i>Corymborchis Ruttenii</i> J. J. S. | * <i>pumilio</i> J. J. S. |
| <i>Cystopus hatumetensis</i> J. J. S. | * <i>secunda</i> J. J. S. |
| * <i>Dendrobium Demmenii</i> J. J. S. | <i>Goodyera Ruttenii</i> J. J. S. |
| * <i>macrostigma</i> J. J. S. | <i>Hetaeria maritima</i> J. J. S. |
| * <i>murkelense</i> J. J. S. | <i>Liparis maotiensis</i> J. J. S. |
| * <i>obcordatum</i> J. J. S. | <i>murkelensis</i> J. J. S. |
| * <i>Ruttenii</i> J. J. S. | * <i>refracta</i> J. J. S. |
| * <i>seranicum</i> J. J. S. | * <i>Mediocalcar seranicum</i> J. J. S. |

<i>Microstylis angustifovea</i> J. J. S.	<i>Peristylus mucronatus</i> J. J. S.
<i>crassilabris</i> J. J. S.	<i>Phreatia latipetala</i> J. J. S.
<i>crenatiloba</i> J. J. S.	* <i>navicularis</i> J. J. S.
* <i>incurviforceps</i> J. J. S.	<i>seranica</i> J. J. S.
<i>Loxia</i> J. J. S.	* <i>Platylepis Bombus</i> J. J. S.
<i>seranica</i> J. J. S.	<i>Plocoglottis seranica</i> J. J. S.
<i>triphylla</i> J. J. S.	<i>Pomatocalpa linearipetalum</i> J. J. S.
<i>Myrmecis seranica</i> J. J. S.	<i>Robiquetia dentifera</i> J. J. S.
<i>Nervilia seranica</i> J. J. S.	<i>Thrixspermum clavilobum</i> J. J. S.
<i>Oberonia murkelensis</i> J. J. S.	<i>Vanilla seranica</i> J. J. S.
* <i>seranica</i> J. J. S.	<i>Zeuxine bifalcifera</i> J. J. S.

The following species Seran has in common only with Ambon or Boeroe or with both islands.

<i>Appendicula latilabium</i> J. J. S.	<i>Dendrobium purpureum</i> RXB. (S.,
(var. <i>seranica</i> J. J. S.) (S., A.)	A., B., also Soela Islands),
<i>Ascoglossum purpureum</i> SCHLTR.	<i>Glomera amboinensis</i> J. J. S.
(S., A.)	(var. <i>seranica</i> J. J. S.)
<i>Bulbophyllum amplebracteatum</i>	<i>Habenaria nalbesiensis</i> J. J. S. (S., B.)
T. et B. (S., A.)	<i>Oberonia enoensis</i> J. J. S. (S. B.)
<i>Calanthe moluccensis</i> J. J. S. (S., A.)	<i>Phalaenopsis amboinensis</i> J. J. S.
<i>tunensis</i> J. J. S. (S., A., B.)	(S., A.)
<i>Coelogyne Rumphii</i> LNDL. (S., A., B.)	<i>Podochilus appendiculatus</i> J. J. S.
<i>Dendrobium acinaciforme</i> RXB. (S., A.)	(S., A.)
<i>aphanochilum</i> KRZL. (S., A.)	<i>Pseuderia foliosa</i> SCHTR. (S., A.)
<i>culceolum</i> RXB. (S., A.)	<i>Robiquetia viridirosea</i> J. J. S. (S., B.)
<i>ephemerum</i> J. J. S. (S., A., B.)	<i>Sarcochilus Treubii</i> J. J. S. (S., B.)
	<i>Vanda saxatilis</i> J. J. S. (S., A., B.)
whereas <i>Dendrobium papilioniferum</i> J. J. S. occurs also on the Kai Islands.	

A few species are spread westward as far as Selebes, but have as yet not been found in New Guinea, viz.

<i>Luisia confusa</i> RCHB. F. (S., A., Obi, Soela Islands)
<i>Phreatia potamophila</i> SCHTR. (S., A., Banda, Selebes)
<i>Trichoglottis geminata</i> J. J. S. (S., A., B., Soela Inlands, Selebes)
<i>Vandopsis lissochiloides</i> PFITZ. (S., B., Selebes, Philippines).

Seran has the following species, which are not yet recorded from Boeroe but some of which were found in Ambon, in common with New Guinea.

<i>Bulbophyllum Hahlianum</i> SCHLTR.	<i>Phajus montanus</i> SCHLTR.
(also Ambon).	(var. <i>seranicus</i> J. J. S.)
<i>Dendrobium crenatilabre</i> J. J. S.	<i>Phreatia semiorbicularis</i> J. J. S.
(var. <i>seranicum</i> J. J. S.)	(var. <i>seranica</i> J. J. S.)

- Grammatophyllum papuanum* J.J.S. *Pterostylis papuana* ROLFE
Habenaria chloroleuca SCHLTR. (var. *seranica* J.J.S.)
Microstylis Zippelii J.J.S. *Vrydagzynea elongata* BL.
Peristylus papuanus J.J.S. (also Ambon).

A fairly large number of species occur in the Moluccas, Selebes and New Guinea. A few of the species mentioned here do not extend so far westward or eastward and one goes as far as East-Java.

- Agrostophyllum parviflorum* J. J. S. (S., Halmahera, New Guinea)
Dendrobium confusum SCHLTR. (S., A., Soela Islands, Selebes, New Guinea)
lancifolium A. RICH. (S., A., B., Ternate, Selebes, Banda, New Guinea)
rhipidolobum SCHLTR. (S., Selebes, New Guinea).
Mirbelianum GAUD. (S., A., B., Soela Islands, N. Guinea).
Eria littoralis T. et B. (S., A., B., Selebes, Kai Islands).
moluccana SCHLTR. et J. J. S. (S., A., B., Soela Isl., Selebes, New Guinea).
Grammatophyllum scriptum BL. (S., A., B., Obi, Kabaena, Selebes, New Guinea, Philippines)
Phajus amboinensis BL. (S., A., Soela Isl., Selebes, East-Java, New Guinea)
Pomatocalpa marsupiale J. J. S. ¹⁾ (S., A., B., Obi, Ternate, Halmahera, Soela Isl., Selebes (*P. Koordersii*), Salawati, Kai Isl., New Guinea)
Sarcochilus platyphyllus F. v. MUELL. (S., Soela Isl., Selebes, Kai Isl., New Guinea)
Zeuxine amboinensis J. J. S. (S., A., Ternate, New Guinea).

Finally I give here a list of species which cover a still larger area and occur both in the Malayan and the Papuan territory.

- Acriopsis javanica* REINW. (Malay Peninsula and Archipelago, New Guinea, Philippines)
Appendicula reflexa BL. (Malay Peninsula and Archipelago, New Guinea)
Bulbophyllum grandiflorum BL. (Southern Sumatra, Selebes, Ambon, Seran, Schouten Isl., New Guinea)
Calanthe veratrifolia R. BR. (Malay Peninsula and Archipelago, Moluccas, Philippines)
Coelogyne asperata LNDL. (Malay Peninsula, Sumatra, Borneo, Moluccas, New Guinea, Philippines; not in Java and the Lesser Soenda Isl.)
Dendrobium anosmum LNDL. (Malay Peninsula, Borneo, Selebes, Moluccas, New Guinea, Philippines)
Eria javanica BL. (Malay Peninsula and Archipelago, New Guinea, Philippines)
Eulophia squalida LNDL. (British India, Malay Peninsula and Archipelago, New Guinea, Philippines)

¹⁾ It is not quite certain yet whether *Pomatocalpa marsupiale* J. J. S. and *P. Koordersii* J. J. S. should be taken as two distinct species or merely as varieties. I have taken them together in this place.

- Galeola Kuhlîi* RCHB. F. (British India, Further India, Malay Peninsula and Archipelago as far as the Moluccas, Philippines)
Geodorum purpureum R. BR. (British India, Malay Peninsula and Archipelago)
Goodyera rubicunda LNDL. (Malay Peninsula and Archipelago, New Guinea, Philippines)
Habenaria Rumphii LNDL. (Java, Borneo, Selebes, Moluccas, New Guinea)
Nervilia Aragoana GAUD. (British India, Further India, Malay Archipelago, New Guinea, Samoa (?), Philippines)
Oberonia monstrosa LNDL. (Java, Krakatau, Seran (?), also mentioned for the Philippines)
Phajus flavus LNDL. (British India, Sumatra, Java, Seran, New Guinea)
Phalaenopsis amabilis BL. (Malay Archipelago, New Guinea, Philippines; not in the Malay Peninsula)
Pholidota imbricata LNDL. (British India, Further India, Malay Peninsula and Archipelago, New Guinea, Philippines)
Phreatia sulcata J. J. S. (Sumatra, Java, Seran (?), also mentioned for the Philippines)
Platanthera Susannae LNDL. (British India, China, Further India, Malay Peninsula and Archipelago as far as the Moluccas; not in New Guinea)
Plocoglottis Lowii RCHB. F. (Malay Peninsula, Sumatra (RIDLEY), Borneo, Moluccas, New Guinea; perhaps different species)
Sarcanthus subulatus RCHB. F. (British India, Further India, Malay Archipelago as far as the Moluccas; not in New Guinea)
Sarcochilus Zollingeri RCHB. F. (Java, Borneo (?), Ambon, Seran)
Spathoglottis plicata BL. (Malay Peninsula and Archipelago as far as the Moluccas, Philippines)
Tropidia pedunculata BL. (Sumatra, Thousand Islands, Timorlaut, Seran).

Especially I beg to draw attention to *Aglossorhyncha longicaulis* J. J. S., which is the first representative of the genus outside New Guinea, and on *Glomera plumosa* J. J. S. belonging to the section *Giulianettia*, which was as yet neither found west from New Guinea.

It appears from the above that as far is known as yet, the Seran Orchid-flora is closer allied to that of New Guinea than those of Boeroe and Ambon.

The genus *Platylepis* was as yet only known from Africa, the islands of the Pacific and New Guinea. Presently also a species is met with in Seran.

The three collected specimens of *Appendicula seranica* J. J. S., a species belonging to the affinity of *A. pendula* BL., show the same malformations, leading to selffertilisation, as R. SCHLECHTER has mentioned about so many Papuan species. For further particulars I refer to the description of the said species.

NEUWIEDIA BL.

Neuwiedia amboinensis J. J. S. in Bull. Jard. Bot. Buit. 2e sér. XIII (1914), 1.

Ambon: Wai Joea, 200–300 m, in forest (L. RUTTEN n. 1157, leg. KORNASI 17 April 1918).

PLATANThERA L. C. RICH.

Platanthera Susannae LNDL. Gen. et sp. Orch. (1835), 295; etc.

West Seran: Piroe, 0–300 m, forest (L. RUTTEN n. 2272, April 1919).

Ambon: Batoe Gantong, 0–100 m (L. RUTTEN n. 1561, leg. KORNASI 13 July 1918).

PERISTYLUS BL.

Peristylus papuanus J. J. S. in Nova Guinea XII (1913), 3.—*P. remotifolius* J. J. S. l.c. VIII (1909), 134, t. XLV, 149.—*Habenaria papuana* KRZL. in WARB. Pl. Hellwig. 188; SCHLTR. Orch. D.N. Guinea (1911), 7; Fig. Atl. (1923), t. II, Nr. 6.

West Seran: Wai Lantali, 700–1000 m, forest (L. RUTTEN n. 1235, leg. KORNASI 4 May 1918; “flowers light green, lip light yellow”).

South-east Seran: Krai, 0 m, coast-way (L. RUTTEN n. 973, leg. KORNASI 6 February 1918; “flowers light green, lip white”).

Ambon: Wai Joea, 200–300 m, forest (L. RUTTEN n. 1158, leg. KORNASI 17 April 1918; “flowers light yellow, lip black”).

I have little doubt as to the correctness of the determination, having compared the specimens with SCHLECHTER's nrs. 17218, 19263 and 19516, and with specimens of my *P. remotifolius*.

Peristylus mucronatus J. J. S. n. sp.

Tubera elongata, bipartita, sicco c. 7 cm longa. *Caulis* erectus, elongatus, basi radicans, c. 58 cm longus, magna parte vaginis c. 9 remotis tubulosis superne accrescentibus laxioribusque ad c. 5.5 cm longis tectus, apice tantum foliatus. *Folia* c. 6, approximata, elliptico-lanceolata, longe acuminata, acuta, mucronata, basi breviter lateque petiolato-contracta, minute crispata, costa media sicco subtus carinata, nervis c. 3 majoribus non prominentibus utrinque, sicco pallide marginata, subtus pallida, c. 10–15.5 cm longa, 3.3–3.6 cm lata; vaginae tubulosae, superioribus decrescentibus. *Inflorescentia* erecta, laxa multiflora, quaquaversa, pedunculo c. 11.5 cm longo, nonnullis vaginulis adpressis bracteiformibus donato, rachide c. 14 cm longa. *Bracteae* adpressae, e basi triangula sensim longe acuteque acuminatae, concavae, 1nerviae, ad c. 1.1 cm longae, bene 0.3 cm latae. *Flores* patentes, c. 1 cm longi. *Sepalum dorsale* ovario continuum, cum petalis valde cucullatum, concavum, ovatum, apice leviter contractum, anguste obtusum, brevissime obtuse apiculatum, 1nervium, c. 0.34 cm longum, bene

0.2 cm latum. *Sepala lateral* oblique oblongo-elliptica, apice angustata subcucullataque, appendice subulata dorso infra apicem, angulato-concava, dimidio postico margine recurvo convexa, 1nervia, dorso carinata, tota c. 0.475—0.5 cm longa, 0.2 cm lata, mucrone c. 0.1—0.14 cm longo. *Petala* sepalo dorsali agglutinata, basi lata ungui labelli adnata, oblique late triangular, obtusa, concava, 2nervia, margine antico c. 0.26 cm, margine postico 0.34 cm, basi 0.25 cm metientia. *Labellum* ungue concavo subtus convexo gynostemii marginibus adnatum, 3partitum, calcaratum, incrassatione transversa ad basin laminae ante gynostemium, usque ad apicem ovarii c. 0.43 cm longum, ungue gynostemio adnato 0.225 cm longo, laciniis lateralibus divergentibus, falcato-linearibus, obtusis, convexis, intermediam superantibus, margine interiore c. 0.27—0.3 cm, margine postico 0.35—0.37 cm, explanatis ad 0.4 cm longis, fere 0.05 cm latis, lacinia intermedia brevior, recta, lineari, apice angustata, acutiuscula, convexa, c. 0.15—0.175 cm longa, 0.05 cm lata; calcar elongatum, basi reversum ovarioque parallelum, in c. $\frac{1}{4}$ supra basin incurvum et cum ovario angulum acutum faciens, apice incurvulum, $\frac{3}{5}$ partibus superioribus leviter fusiformi-ampliatum, apice attenuatum, obtusum, inexplanatum c. 0.8 cm longum. *Gynostemium* brevissimum, c. 0.175 cm longum, labello adnatum. *Anthera* dorso convexa. *Ovarium* tortum, bene 1.1 cm longum.

Central Seran: South of Kaniki, 600—1000 m, forest (L. RUTTEN n.1384, leg. KORNASI 22 June 1918; "flowers light green, lip white").

In habit and also in the colour of the dried leaves this plant looks very much like *P. goodyeroides* LNDL., but it has an elongated spur.

Description from a single dried specimen.

HABENARIA WLLD.

Habenaria (sect. Plantagineae) **chloroleuca** SCHLTR. in SCHUM. et LAUT. Nachtr. Fl. D. Schutzgeb. Südsee (1905), 77; Orch. D.N. Guinea (1911), 13; Fig. Atl. (1923), t. V, Nr. 16; J. J. S. in N. Guinea VIII (1909), 4, t. 1, 2.

North Seran: Kali Koea, 0—100 m, forest (L. RUTTEN n. 468, leg. KORNASI 19 November 1917; "flowers white"). Near Kali Torhoe, c. 80 m, forest, not frequent (L. RUTTEN n. 68, leg. KORNASI 29 August 1917); "flowers white").

South-east Seran: Wai Tok, 0—100 m, bank vegetation (L. RUTTEN n. 1049, leg. KORNASI 26 February 1918; "flowers white").

Habenaria (sect. Acuiferae) **Rumphii** LNDL. Gen. et sp. Orch. (1835), 320; etc.

West Seran: Island Boano, 0—200 m (L. RUTTEN n. 1312, leg. KORNASI 13 May 1918; "flowers white").

Habenaria (sect. Salaccenses) **nalbesiensis** J. J. S. in Bull. Jard. Bot. Buit. 3e sér., IX (1928) 440.

West Seran: Island Boano, 0–200 m, frequent (L. RUTTEN n.1318, leg. KORNASI 13 May 1918; “flowers white, lip yellow”).

This agrees well with the Boeroe plant.

PTEROSTYLIS R. BR.

Pterostylis papuana ROLFE in Kew Bull. 1899, 112; J.J.S., in N. Guinea XII (1915), 185, t. LXI, 99.

var. **seranica** J.J.S. n. var.

Caulis erectus, usque ad florem c. 12–14 cm longus. *Folia* inferiora pauca, petiolata, ovata, subacuta, basi rotundata, undulata, 5–7nervia, costa media dorso carinata, reticulato-venosa, c. 2.9–3.3 cm longa, 1.6–1.7 cm lata; petiolus canaliculatus, cum vagina c. 1.4–2 cm longus, folia superiora decrescentia, brevius petiolata, in bracteam vergentia. *Bractea* sessilis, amplexicaulis, ovata, acutiuscula, crispula, minute papillosa, dorso carinata, c. 2.2 cm longa, 1.1 cm lata. *Flos* 1, erectus, magnus, c. 4.6 cm longus, sepalis petalisque dorso dense puberulo-papillosis. *Sepalum dorsale* erectum, basi longitudine c. 0.75 cm gynostemio adnatum, petalis agglutinatum, conduplicato-concavum, ovato-lanceolatum, sensim acuminatum, acutum, c. 13nervium, costa media dorso carinata, c. 5.1 cm longum, 1.8 cm latum. *Sepala lateralalia* pedi gynostemii inserta, inferne longitudine c. 1.2 cm connata, erecta, subfalcata, e basi oblique oblonga marginibus proximis incurva in caudam elongatam marginibus incurvis subtubulosum producta, acuta, 8–9nervia, costa media dorso obtuse prominente, tota c. 3.9 cm longa, 0.9 cm lata, cauda 1.6 cm longa. *Petala* erecta, oblique anguste lanceolata, sigmoidea, acuta, $\frac{1}{3}$ inferiore unilateraliter unguiculato-contracta, margine postico in $\frac{1}{3}$ supra basin paulum obtusangule dilatata, inaequilatera, costa media dorso prominente, c. 4.4 cm longa, 1 cm lata, ungue c. 1.3 cm longo. *Labellum* apici gynostemii insertum, erectum, apice vix recurvulum, gynostemium aequans, lanceolatum, apice leviter contractum, obtusum, convexum, subtus concavum, supra ad basin 3costatum, costis exterioribus mox evanescentibus, costa mediana in formam fasciae convexae producta, minutissime papillosum, supra basin 7nervium, c. 1.5 cm longum, 0.47 cm latum, appendice basilari reversa cum labello angulum obtusum cum pede gynostemii angulum acutum faciente, lineari, canaliculata, apice muricibus ramosis penicillata, c. 0.5 cm longa. *Gynostemium* gracile, erectum, cum ovario angulum obtusum faciens, parte inferiore sepalo intermedio adnata incurvum, ceterum rectum, c. 2.2 cm longum, $\frac{1}{3}$ superiore utrinque late alatum, alis oblique quadrangulis postice in appendicem reversam triangulam anguste obtusam cum gynostemio angulum acutum facientem productis margine exteriori incurvo margineque postico ciliatis, margine antico (apicali) subrotundatis et subulam conspicuam subsigmoideam gerentibus, apice gynostemii subquadrangulo obtuso apiculato. *Anthera* erecta, cucullata, conduplicata, quadrangula, obtusiuscula, apiculata, connectivo carinato, c. 0.17 cm longa. *Stigma* subtus fere in medio gynostemii, longitudinale, gynostemio latius,

incrassatum, ovato-oblongum cum sulco longitudinali, apice acutum, basi obtusum, c. 0.5 cm longum. *Pes gynostemii* cum ovario gynostemioque angulos obtusos faciens, magnam partem carnosus et basi sepalorum lateralium adnatus, rectus, parte apicali tenuiore obtusangule incurvula libera, totus c. 0.7 cm longus. *Ovarium* 6sulcatum, 6costatum, c. 0.9 cm longum, cum pedicello tenuiore 0.8 cm longo clavatum.

Central Seran: Goenoeng Pinaia, c. 2750 m, rare (Il. Freiburger Molukken-Expedition, E. STRESEMANN n.295, August 1911; "flowers reddish brown darker towards the tips"). Goenoeng Moerkele, 2500 m, forest on limestone (L. RUTTEN n.1476, leg. KORNASI, 1 July 1918, "flower red").

Differing from the type as I described it l.c. chiefly in the shorter lip and much shorter ovary.

Description from a dried specimen (STRESEMANN n.295).

NERVILIA GAUD.

Nervilia (sect. *Linervia*) **seranica** J. J. S. n. sp.

Tuber subglobosum, c. 0.8 cm diam., radicibus abbreviatis crassis pilosis. *Caulis* hypogaeus, c. 1.7 cm longus, radicibus abbreviatis pilosis. *Inflorescentia* 1flora, pedunculo c. 6.5 cm longo, basi nonnullis vaginulis tubulosis superne vaginula singula donato. *Bractea* erecta, lanceolato-triangulari, apice minute 3dentata (an semper?), concava, c. 0.8 cm longa. *Flos* mediocris. *Sepalum dorsale* incurvum, anguste lanceolatum, acutum, basi vix contractum, concavum, 3nervium, c. 1.9 cm longum, 0.32 cm latum. *Sepala lateral*ia oblique lanceolato-linear, acuta, concava, 3nervia, c. 1.775—1.8 cm longa, 0.27—0.3 cm lata. *Petala* e basi longius linearicontracta linearilanceolata, acuta, concava, 3nervia, c. 1.75—1.8 cm longa, 0.27—0.28 cm lata. *Labellum* porrectum, gynostemium plus quam duplo superans, canaliculato-concavum, 3lobum, costis 2 longitudinalibus convexis puberulis e basi in basi lobi intermedii evanescentibus, papillosum, subtus longitudinaliter sulcatum, 3nervium, nervis exterioribus valde ramosis, explanatum e basi bene unguiculato-contracta ambitu ellipticum, totum c. 1.74 cm, usque ad apicem loborum lateralium 1.1 cm longum, ad lobos laterales 1 cm latum, ungue quadrangulo, c. 0.4 cm longo latoque; lobi laterales incurvi, porrecti, concavi, explanati divergentes, cum lobo intermedio angulum acutum facientes, oblique trianguli, subparallelogrammiformes, obtusi; lobus intermedius porrectus, laterales bene superans, concavus, explanatus quinquangularis, obtusus, superne repandulus, c. 0.83 cm longus, 0.7 cm, basi 0.45 cm latus. *Gynostemium* clavatum, parte tenui subtus puberulum, c. 0.825 cm longum, clinandrio alte excavato, auriculis antice truncatis inferne rotundatis repandulisque. *Anthera* magna, cucullata, a latere visa triangulari, antice visa oblongo-quadrangula concavaque, apice utrinque rotundato-angustata truncataque, basi in appendicem conspicuam reversam bilobulam concavam tenuem in clinandrium quadrantem producta, antice 0.24 cm longa. *Rostellum* breve, recurvum, triangulum, obtusum. *Stigma* longitudinale,

ovale, apice truncatum. *Ovarium* obconicum, trigonum, 6costatum, c. 0.4 cm longum; pedicellus multo tenuior, c. 0.17 cm longus.

Central Seran: Manoesela (L. RUTTEN without number, leg. KORNASI 25 June 1918; "flower white, lip light purple").

A near ally of *N. punctata* SCHLTR., but with differently coloured flowers, a broader lip distinctly contracted at the base and with larger side-lobes

Description from a specimen preserved in alcohol.

Nervilia (sect. Eunervilia) **Aragoana** GAUD. in FREYC. Voy. Bot. (1829), 422, t.35; etc.

North Seran: Goenoeng Pemali near Wahai, 0 m, in a garden (L. RUTTEN n.230, leg. KORNASI 20 October 1917).

VANILLA Sw.

Vanilla seranica J. J. S. n.sp.

Caulis elongatus, scandens, e nodis radicem singulam emittens, internodiis c. 9–12 cm longis. *Folia* oblonga ad oblongo-ovalia, acuminata, basi lata rotundata breviter late canaliculato-contracta, sicco coriacea, c. 20–21 cm longa, 5–5.5 cm vel plus lata, petiolo 0.8–1 cm longo. *Inflorescentiae* e nodis, dense multiflorae, pedunculo c. 1.5–3 cm longo, nonnullis vaginulis brevibus donato, rachide tortuosa, diu flores gignente, ad c. 6.5 cm longa. *Bractee* reflexae, triangulae, obtusae, concavae, carnosulae, sicco ad c. 0.3–0.5 cm longae. *Flores* conspicui. *Sepalum dorsale* lanceolatum, apice marginibus incurvis contractum canaliculatumque, obtusum, basin versus angustatum, c. 4.1 cm longum, 0.9 cm latum. *Sepala lateral*ia oblique oblongo-elliptica, apice marginibus incurvis canaliculato-contracta, obtusa, basin versus angustata, c. 1.3 cm longa, supra medium 1.25 cm lata. *Petala* oblique oblongo-elliptica, falcata, apice canaliculato-angustata, obtusa, basin versus angustata, c. 1.3 cm longa, costa media dorso incrassata, c. 3.9–4 cm longa, 1.35 cm lata. *Labellum* ultra medium gynostemio adnatum, ventricosum, 3lobum, fascia lamellarum adpressarum reversarum densarum cuneato-quadrangulorum truncatarum dense serrulatarum c. 0.4 cm longarum intus inter lobos, explanatum cuneatum, totum c. 3.45 cm, usque ad apicem loborum lateralium c. 2.8 cm longum, ad lobos laterales 2.9 cm latum, parte gynostemio adnata c. 1.9 cm longa; lobi laterales lati, valde plicati; lobus intermedius revolutus, valde convexus, valde plicatus, verosimiliter irregulariter marginatus vel lacinulatus, intus pluribus lamellis elongatis lineari-subulatis falcatulis instructus, c. 1 cm longus. *Gynostemium* elongatum, magna parte labello adnatum, subtus medio nonnullis lamellis longitudinalibus brevibus lacinulatis donatum, totum c. 2.4 cm longum, parte labello adnata 2 cm longa, clinandrio magno, concavo, utroque latere lobulato. *Anthera* magna, cucullata, late quadrangula, apice truncato utrinque leviter rotundata, c. 0.35 cm longa, 0.3 cm lata. *Rostellum* magnum, quadrangulum, truncatum, supra leviter convexus.

Stigmatis margo inferior valde productus, rostello subsimilis, recurvus, quadrangulus, truncatus, longitudinaliter minute plicatus, membranaceus.

North-west Seran: North of Riring, 700—1000 m, forest (L. RUTTEN n.1800, 17 October 1918; "flowers white, fragrant").

West-Seran: Wai Kojali, 100—300 m, forest, bank vegetation (L. RUTTEN n. 1880, 13 November 1918; "flowers white").

I have described this with some hesitation as the material at hand is not in a good condition. The nearest allies seem to be *V. klabatensis* SCHTR. from Selebes and *V. abundiflora* J.J.S. from Borneo; they differ i.a. in the characteristics of the column. Better materials especially flowers preserved in alcohol are much wanted.

Description from herbarium.

GALEOLA LOUR.

Galeola Kuhlii RCHB. F. Xen. Orch. II (1865), 78; NAVES Nov. App. (1882), 247; AMES in MERR. En. Phil. fl. pl. I (1924), 262; etc.

North Seran: Wahai, Aer Bote (L. RUTTEN without number, leg. KORNASI 2 March 1918). Wai Hoelioe, 0—100 m, forest, bank vegetation (L. RUTTEN n. 2092, 19 March 1919; "flowers yellow, lip striped red longitudinally").

East-Seran: Wai Bolofar, 100—200 m, forest (L. RUTTEN n. 2143, 9/10 April 1919; "flowers yellow").

VRYDAGZYNEA BL.

Vrydagzynea elongata BL. Fl. Jav.Orch. (1858), 61, t.28. f.1; J.J.S. in Nova Guinea XII (1915), 190.— *V. rectangulata* J.J.S. in Bull. Jard. Bot. Buit. 2e sér. XIII (1914), 54.— *V. pachyceras* SCHLTR. in SCHUM. et LAUT. Nachtr. Fl. D. Schutzgeb. Südsee (1905), 84; Fig. Alt. (1925), t. XXXIV, Nr. 116. — *Hetaeria elongata* MIQ. Fl. Ind. Bat. III (1859), 726.

North Seran: Oeloe Wai Koea, c. 100 m, forest (L. RUTTEN n. 42, leg. KORNASI 26 August 1917; "nom. ind. *kaowo*; flowers white").

Agrees well with the Papuan specimens.

CHEIROSTYLIS BL.

Cheirostylis bidentata J.J.S. n. sp.

Caulis carnosus, pars adest c. 7 cm longus. *Folia* (1 adest) late ovata, triangulo-acuminata, acuta, basi in petiolum latum contracta, nervis 5 tenuibus, laxe reticulato-venosa, c. 2.2 cm longa, 1.5 cm lata; petiolus c. 0.6 cm longus. *Inflorescentia* erecta, elongata, pauciflora, pedunculo sparse longe piloso, c. 16.5 cm longo, vaginulis c. 3 (marcidis) donato, rachide glanduloso-pilosa, c. 1.8 cm longa. *Bractee* valde concavae, rachidem amplectentes, e basi suborbiculari subulato-acuminatae, dorso parce longe glanduloso-pilosae, 1nerviae, c. 0.6 cm longae, 0.36 cm latae. *Flores* c. 6, mediocres,

sepalis fere usque ad medium in tubum trifidum medio obtusangule incurvulum connatis, dorso longe glanduloso-pilosis. *Sepalum dorsale* valde concavum, oblongum, apicem versus angustatum, obtusum, 1nervium, totum c. 0.7 cm longum, parte libera 0.35 cm longa, 0.26 cm lata. *Sepala lateral*ia concava, oblique oblonga, apicem versus angustata, obtusa, 1nervia, tota c. 0.65 cm longa, parte libera 0.3 cm longa, 0.26 cm lata. *Petala* libera, sepalo dorsali agglutinata, oblique cuneato-oblonga, apice oblique late subquingulari-contracta, obtusa, leviter inaequilatera, concava, 1nervia, fere 0.7 cm longa, 0.225 cm lata, apice contracto 0.14 cm longo. *Labellum* basi brevissime reverse obtuse saccatum, 3nervium, sacco sepalis incluso, intus utrinque lamella longitudinali alte in lacinias 4–5 irregulares lineares interdum bilobas partita donato, marginibus ante gynostemium abrupte incurvis sed non contiguis unguem oblongum apicem versus paulum angustatum intus longitudinaliter convexo-costatum marginibus inflexis ad apicem utrinque dente horizontali reverso adpresso triangulo acuto instructum apice maculis 2 viridibus ornatum faciens, apice abrupte in laminam bipartitam dilatatum, lacinii explanatis angulum obtusum facientibus, oblique quadrangulo-oblongis, apicem versus paulum dilatatis, oblique truncatis et apice in lacinulas 4 breves oblique triangulas ad oblongas obtusas divisas, totum explanatum c. 0.875 cm, usque ad basin laminae 0.7 cm longum, sacco fere 0.3 cm longo, ungue 0.3 cm longo basi 0.2 cm lato, lamina fere 0.8 cm lata, lacinii c. 0.425–0.45 cm longis apice 0.225–0.24 cm latis. *Gynostemium* c. 0.4 cm longum, subtus infra rostellum appendicibus 2 porrectis rostellum paululo longioribus acute apiculatus donatum. *Anthera* cucullata, cordata, acuminata. *Pollinia* 2, pyriformia, sulcata. *Rostellum* valde porrectum, conspicuum, alte in lacinias 2 oblongas parallelas partitum. *Stigmata* 2, utrinque ad basin rostellum. *Ovarium* fusiforme, longe glanduloso-pilosum, c. 0.6 cm longum; pedicellus tenuior, parce pilosus, c. 0.4 cm longus. *Capsula* clavata, flore marcido coronata, in valvas 3 lineares et 3 spatulato-oblongo-obovatas costa media dorso incrassata munita dehiscens, cum pedicello torto c. 1.4 cm longa.

North Seran: Ninama, between Pasahari and Kaloa, 0–20 m, forest, bank vegetation (L. RUTTEN n.741, leg. KORNASI 17 December 1917; "flowers white, lip green").

In some respects this resembles *Ch. dendrophila* SCHTR. from New Guinea but the petals are quite different, and the laciniae of the lip longer and narrower.

The two teeth at the apex of the claw of the lip should be studied on fresh material or on flowers preserved in alcohol.

Description from a dried specimen.

MYRMECHIS BL.

Myrmechis seranica J. J. S. n. sp.

Caulis decumbens, adscendens, teres, glaber, c. 11–20 cm longus, foliatus. *Folia* c. 8–11, patentia, ovata, acuta, basi obtusa brevissime in

petiolum contracta, crispata, 3nervia, oblique penninervia, costa media supra canaliculata subtus carinata, subcarnosula, c. 2.4—3.4 cm longa, 1.3—1.5 cm lata; petiolus erectus, canaliculatus, cum vagina brevi tubulosa 1—1.5 cm longus. *Inflorescentia* brevissima, subdense pauci-pluriflora, nonnullis vaginulis foliaceis sessilibus ad basin, pedunculo cum rachide c. 1—2.8 cm longo, piloso. *Bractee* adpressae, ovatae, acuminatae, anguste obtusae, concavae, parte inferiore parce ciliatae, dorso laxius pilosae, nervo 1 dorso prominente, ad c. 1.1 cm longae, 0.5 cm latae. *Flores* c. 4—7, erecto-patentes, c. 1 cm longi, sepalis basi altius connatis dorso sparse reverse eglanduloso-pilosis petalisque conniventibus. *Sepalum dorsale* oblongum, $\frac{1}{3}$ superiore leviter contractum, obtusum, leviter retusum, concavum, 1nervium, totum fere 0.9 cm longum, basi longitudine 0.4 cm sepalis lateralibus adnatum, 0.375 cm latum. *Sepala lateral* oblique oblongo-ovata, circiter dimidio superiore leviter contracta, obtusa, apice dorso leviter incrassata, concava, 1nervia, fere 1.1 cm longa, basi longitudine c. 0.4 cm connata, 0.5 cm lata. *Petala* libera, sepalo intermedio agglutinata, oblique elliptica, apice subabrupte oblique oblongo-contracta, obtusa, basi angusta, subinaequilatera, concava, 1nervia, c. 0.875 cm longa, 0.36 cm lata. *Labellum* porrectum, subtus longitudinaliter sulcatum, basi rotundato-saccatum marginibusque incurvis undulatis gynostemio adpressum, glandula erecta curvata carnosula oblonga apice obtuse bilobula utrinque in sacco, 5nervium, marginibus ante saccum incurvis contiguis apice excepto extus repandule carnosula-alato-dilatatis in unguem conspicuum oblongum contractum, apice in laminam transverse oblongam angulatam, utrinque obtusissimam apice subtruncatam cum dente apicali brevi triangulo obtuso secundum costam mediam obtusangule incurvam dilatatum, totum c. 0.975 cm longum, sacco 0.4 cm longo, ungue bene 0.4 cm longo, 0.175 cm, apice bene 0.1 cm lato, lamina 0.2 cm longa 0.4 cm lata. *Gynostemium* subtus cum ovario angulum obtusum faciens, dorso leviter sigmoideum, subtus lamellis 2 oblique porrectis antice cum gynostemio angulum acutum facientibus marginibus posticis contiguis antice divergentibus oblique obovato-oblongis obtusis intus convexis extus angulato-concavis carnosus in saccum quadrantibus donatum, c. 0.45 cm longum, clinandrio excavato, oblongo, margine utrinque antice dente instructo. *Anthera* cucullata, cordata, e basi dilatata longe angustata, cum apiculo parvo tenuiore triangulo, c. 0.3 cm longa, 0.17 cm lata. *Rostellum* porrectum, latum, sinu late oblongo basi rotundato in dentes 2 triangulos subulato-acuminatos partitum. *Stigmata* 2, convexa. *Ovarium* sessile, apice breviter incurvum attenuatumque, 6sulcatum, reverse longe pilosum, c. 1 cm longum.

Central Seran: Goenoeng Moerkele, 2000—2500 m, forest (L. RUTTEN n.1485, leg KORNASI 1 July 1918; "flowers white, lip green").

This differs from the Javanese species in the larger leaves, more-flowered inflorescence, pubescence of the flowers, shape of the column, longer anther etc.

Description from herbarium and materials preserved in alcohol.

ZEUXINE LNDL.

Zeuxine amboinensis J.J.S. in Ic.bog.II (1905), 259; etc.

Central Seran: Manoesela, 700 m, forest (L. RUTTEN n.1422 leg. KORNASI 27 June 1918; "flowers white"). Hatoeolo, 600 m, forest (L. RUTTEN n.1526, leg. KORNASI 4 July 1918; "flowers white").

Probably the latter number belongs here but the material was in a bad condition.

Zeuxine bifalcifera J.J.S. n. sp.

Caulis decumbens, radicans, ramosus, teres, c. 6–9 cm longus, 2–3-folius. *Folia* ovata ad lanceolato-ovata, acuta vel leviter acuminata, breviter apiculata, basi rotundata, undulata, nervis 3 subtus prominentibus, costa media supra sulcata, c. 1.6–4.6 cm longa, 0.85–1.7 cm lata; petiolus canaliculatus, cum vagina brevi tubulosa c. 0.7–1.3 cm longus. *Inflorescentia* erecta, laxe pauciflora, pedunculo elongato, pubescenti, c. 7–10 cm longo, vaginulis c. 3 basi tubulosis donato, rachide pubescenti, c. 1.4–6 cm longa, 2–7flora. *Bracteae* ovato-triangularae, acute acuminatae, concavae, dorso glanduloso-pubescentes, c. 0.53 cm longae, 0.3 cm latae. *Flores* mediocres, sepalis dorso subpatentissime glanduloso-pubescentibus. *Sepalum dorsale* ovatum, acuminatum, obtusum, concavum, 3nervium, c. 0.53 cm longum, 0.3 cm latum. *Sepala lateral*ia oblique oblango-ovata, obtusa, concava, 3nervia, c. 0.5 cm longa, 0.275 cm lata. *Petala* sepalo intermedio agglutinata, valde oblique, inaequilatera, e basi lata oblique subquadrangula conspicue oblango-contracta, obtusa, superne interdum plus minusve irregulariter marginata, concava, 3nervia (an semper?), c. 0.475–0.55 cm longa, 0.25–0.26 cm lata. *Labellum* subtus longitudinaliter sulcatum, basi saccato-concava marginibus valde incurvis gynostemio adpressum, 3nervium, nervis exterioribus basi furcatis, sacco subgloboso-ovato intus longitudinaliter costato cum lamella transversa bipartita utrinque, marginibus supra basin contiguis unguem brevem a dorso compressum subquadratum 4costatum (costis 2 et marginibus incrassatis) valde recurvum formans, apice in laminam brevem latissimam bipartitam dilatatum, laciniis divergentibus, subfalcatulo-recurvulis, oblique lineari-lanceolatis, obtusiusculis acutisve, sacco c. 0.15 cm longo, ungue c. 0.1 cm longo 0.15 cm lato, lamina 0.9 cm lata, laciniis 0.45–0.475 cm longis 0.15–0.16 cm latis. *Gynostemium* breve, crassum, breviter ovatum, basi contractum, dorso convexum, subtus costis 2 longitudinalibus humilibus instructum, c. 0.25 cm longum, clinandrio alte excavato truncato. *Anthera* firme affixa, cucullata, late cordata, abrupte in rostrum triangulum acutum incurvulum acuminata, fere 0.2 cm longa, 0.16 cm lata. *Pollinia* 2, breviter late pyriformi-obovoidea, stipite lato, valde convexo, ambitu late obovato, apice marginibus utrinque incurvis trilobulato, fere 0.15 cm longo, glandula in facie inferiore minore. *Rostellum* porrectum, triangulum, usque ad basin bipartitum, laciniis latis antice verticalibus obtusissimis extus convexis intus concavis. *Stigmata* 2, in utroque latere gynostemii, rotundata. *Ovarium* 6sulcatum, patentissime glanduloso-pubescenti, c. 0.6 cm longus.

North Seran: Wahai, Kali Koea (L. RUTTEN without number, leg. KORNASI 26 August 1917; "flowers white"). Ninama, between Pasahari and Kaloa, 0—20 m, forest, bank vegetation (L. RUTTEN n.740, leg. KORNASI 17 December 1917; "flowers white").

Very near *Z. triangula* J.J.S. from Boeroe but with a laxer, fewer-flowered inflorescence, differently coloured flowers, a relatively much narrower sac and a shorter and broader blade of the lip, a less deeply cordate anther. Moreover *Z. triangula* has been found at 1200 m above the sea and *Z. bifalcifera* at sea-level.

According to the very inadequate description, *Epipactis trinervia* ROXB. from the Moluccas may be a similar plant.

Description from specimens preserved in alcohol.

HETAERIA BL.

Hetaeria maritima J. J. S. n. sp.

Caulis e basi decumbente radicante erectus, c. 6.5—16 cm longus, c. 5folius. *Folia* oblongo-ovata ad ovata, acutata vel subacuminata, acuta, apiculata, basi truncato-rotundata, c. 5—7nervia, sicco membranacea, inferiora superioraque minima, mediana maxima, ad c. 3—5 cm longa, 1.3—1.8 cm lata; petiolus canaliculatus, cum vagina ample tubulosa c. 0.9—1.4 cm longus. *Inflorescentia* erecta, elongata, laxe multiflora, pedunculo longe piloso, c. 8—11 cm longo, vaginulis 3 foliaceis in bracteas vergentibus ultima excepta basi tubulosis longe acuminatis plus minusve pilosis donato, rachide pilosa, c. 5—9.5 cm longa. *Bracteae* adpressae, e basi dilatata orbiculari-ovata longe lineari-subulatae, apice excepto longe ciliatae, dorso pilosae, concavae, 1nerviae, ad c. 0.8 cm longae, superiores minores. *Flores* quaquaversi, erecti, c. 0.4 cm longi, sepalis dorso longius pilosis expansis bene 0.6 cm lati. *Sepalum dorsale* cum ovario angulum obtusum faciens, supra basin incurvum, valde concavum, ovatum, acuminatum, obtusum, 3nervium, c. 0.46 cm longum, bene 0.2 cm latum. *Sepala lateralialia* divergentia, oblique oblongo-ovata, apicem versus sensim angustata, obtusa, concava, 1nervia, c. 0.4 cm longa, 0.15 cm lata. *Petala* sepalo dorsali agglutinata, oblique lanceolata, obtusa, inaequilatera, margine exteriori leviter obtusangule dilatata, 1nervia, c. 0.375 cm longa, 0.12 cm lata. *Labellum* basi saccata marginibus gynostemio adpressum, subtus longitudinaliter sulcatum, sacco ovato postico sulco retuso intus costula longitudinali et utrinque lamella elongata lineari involuta vel curvata donato, marginibus fere a medio abrupte inflexis contiguisque unguem brevem utrinque patentissime alato-dilatatum a dorso compressum apicem versus paulo dilatatum formans, apice in laminam parvam recurvam lateribus rotundato-dilatatis erectis canaliculatam in lobulum parvum obtusum incurvulum productam dilatatum, inexplanatam c. 0.3 cm, explanatum 0.35 cm longum, sacco 0.175 cm longo, ungue fere 0.075 cm longo basi 0.05 cm apice 0.075 cm lato, lamina transverse oblongo-ovali apice in lobulum parvum triangulum obtusum producta c. 0.1

cm longa 0.17 cm lata. *Gynostemium* breve, basi contractum, subtus lamella lata transversa horizontali porrecta antice brevissime bidentata instructum, c. 0.2 cm longum, clinandrii pariete tenui. *Anthera* cucullata, cordata, longe triangulo-acuminata, acuta, apiculata, c. 0.2 cm longa. *Pollinia* 2, pyriformia, cum stipite et glandula parva oblonga. *Rostellum* conspicuum, porrectum, antheram paulum superans, latum, in lacinias 2 oblique lineares parallelas superne verticales oblique truncatas concavas partitum. *Stigmata* 2, remota, longitudinalia. *Ovarium* sessile, erectum, teres, fusiforme, etortum, longius pilosum, c. 0.8 cm longum. *Capsula* sessilis, erecta, fusiformis, pilosa, c. 0.9 cm longa, reliquiis floris coronata.

North Seran: Wahai, Batoe Kapiran, 0 m, beach vegetation (L. RUTTEN nrs. 750 and 751, leg. KORNASI 9 January 1918; "flowers white"). Wai Toloearang, 0–100 m, forest (L. RUTTEN n. 1366, leg. KORNASI 19 June 1918; "flowers white").

Allied to *H. falcata* J. J. S. from New Guinea but with much narrower petals and a differently shaped lip and column.

The specimens of n. 1366 are rather larger, the leaves attaining a length of 6.5 cm, the peduncle of 12 cm and the rachis of 17 cm.

Description from herbarium.

CYSTOPUS BL.

Cystopus hatumetensis J. J. S. n. sp.

Caulis decumbens, radicans, foliatus, c. 19 cm longus. *Folia* c. 5–6, patentia, ovata, acuta, basi rotundata ad obtusa, brevissime in petiolum acuminata, c. 5nervia, costa media dorso prominente, c. 1.4–3.2 cm longa, 1.1–1.4 cm lata; petiolus canaliculatus, cum vagina tubulosa c. 1–1.5 cm longus. *Inflorescentia* brevis, pauciflora, pedunculo sicco crispule piloso, c. 1.5 cm longo, vaginulis c. 2 erectis foliaceis donato, rachide c. 1 cm longa, indumento pedunculi. *Bractee* adpressae, subovato-oblongae, longe acuminato-contractae, apice acutatae, acutae, concavae, ciliatae, dorso pilosae, 1nerviae, c. 1.1 cm longae, fere 0.4 cm latae. *Flores* c. 5, mediocres, c. 1.2 cm longi, sepalis conniventibus, dorso pilis pluricellularibus vestitis. *Sepalum dorsale* anguste oblongum, apicem versus sensim angustatum, obtusum, margine apicali incurvulum, concavum, 1nervium, bene 1 cm longum, 0.37 cm latum. *Sepala lateral*ia oblique lanceolata, obtusiuscula, margine antico basi paulo dilatato labelli saccum amplexentia, concava, 1nervia, c. 1.2 cm longa, 0.27–0.3 cm, basi 0.36–0.37 cm lata. *Petala* sepalo dorsali agglutinata, oblique linearia, subserpentina, obtusa, leviter inaequilatera, 1nervia, c. 1 cm longa, fere 0.2 cm lata. *Labellum* porrectum, 3nervium, basi saccata marginibus gynostemio adpressum, sacco subovato intus utrinque in nervo exteriori lamella erecta oblique bilobula donato, marginibus inflexis contiguis in unguem conspicuum lineari-oblongum utrinque alato-dilatatum et laciniis c. 12 brevissimis superne paulo longioribus obtusis patentissimis pectinatum contractum, apice in laminam transverse oblongam utroque latere subsexangu-

latam obtusamque abrupte dilatatum, totum c. 1.15 cm longum, sacco 0.4 cm longo, ungue fere 0.5 cm longo 0.225 cm lato, lamina 0.26 cm longa, 0.6 cm lata. *Gynostemium* c. 0.65 cm longum, subtus lamellis 2 longitudinalibus parallelis verticalibus oblique porrectis oblique quadrangulis oblique truncatis in saccum quadrantibus instructum, clinandrio alte excavato longo. *Anthera* firme affixa, cucullata, elongato-cordata, sensim longe acuminata, acuta, c. 0.525 cm longa. *Pollinia* 2, elongato-clavata, glandula anguste oblonga. *Rostellum* porrectum, elongatum, bifidum, laciniis anguste triangulis acutis. *Stigma* in facie inferiore gynostemii, transversum. *Ovarium* sessile, longe pilosum, c. 1.2 cm longum.

Central Seran: Hatoemeten pass, south of Manoesela, 1500—1700 m, limestone, forest (L. RUTTEN n. 616, leg. KORNASI 29 November 1917; "flowers white").

The nearest ally of this species may be *C. puberulus* SCHLTR. from New Guinea, from which it differs in the larger leaves, more-flowered inflorescence, longer pubescence of the flowers, different petals.

Description from a single dried specimen.

PLATYLEPIS A. RICH.

Platylepis Bombus J.J.S. n. sp.

Caulis basi radicans, pars adest c. 9 cm longa. *Folia* c. 3—6, suboblique oblonga ad elliptica, apicem versus acutata vel leviter acuminata, obtusiuscula vel acutiuscula, basi in petiolum acuminata, nervis c. 5—7 majoribus numerosisque minoribus curvatis, oblique reticulato-venosa, mediana maxima, ad c. 9.5—12.5 cm longa, 3.7—4.8 cm lata; petiolus cum vagina c. 3—4.5 cm longus. *Inflorescentia* densius multiflora, pedunculo tereti, inferne glabro, superne breviter reverse grossius pubescenti, c. 5.75—20 cm longo, vaginulis c. 2—8 tubulosis adpressis glabris in bracteas vergentibus donato, rachide c. 8—15 cm longo, indumento pedunculi. *Bracteae* adpressae, concavae, ovatae, acute acuminatae, glabrae, 3nerviae, c. 0.75—1.1 cm longae. *Flores* subsecundi, patentissimi, glabri, subcarnosuli. *Sepalum dorsale* subovato-oblongum obtusum, concavum, 3nervium, c. 0.7 cm longum, 0.25 cm latum. *Sepala lateralialia* oblique ovata, apicem versus angustata, obtusa, concava, 3nervia, c. 0.74 cm longa, 0.34 cm lata. *Petala* sepalo dorsali agglutinata, parte dilatata marginibus proximis conglutinata, oblique spathulata, superne concava, dorso longitudinaliter sulcata, 1nervia, c. 0.66 cm longa, ungue oblique lineari, 0.325—0.35 cm longo fere 0.1 cm lato, lamina oblique ovata obtusa 0.3 cm longa fere 0.2 cm lata. *Labellum* erectum, parte inferiore marginibus gynostemio adpressum, apice abrupte recurvum, subtus alte longitudinaliter sulcatum, subtus visum ambitu ovale, fere in medio abrupte valde constrictum, marginibus incurvis valde concavum, 5nervium, fere 0.5 cm longum, hypochylio intus costa valida longitudinali lata apicem versus dilatata et utrinque ad basin fasciculum muricum filiformium erectorum instructo c. 0.2 cm longo 0.3 cm lato, mesochylio ambitu aequilateraliter trapeziformi margi-

nibus exceptis carnosoincrassato costis 2 longitudinalibus crassis approximatis donato c. 0.2 cm longo 0.35 cm lato, epichyllo minore abrupte recurvo mesochyllo paulo brevior angustiorque ovato obtuso convexo cum canaliculo longitudinali. *Gynostemium* reversum, cum ovario angulum obtusum fere rectum faciens, dorso infra medium obtusangule incurvum, subtus costis 2 longitudinalibus parallelis ad stigma excurrentibus donatum, utroque latere longitudinaliter costatum, c. 0.6 cm longum, clinandrio conspicuo alte excavato. *Anthera* cucullata, elongato-cordata, apice leviter recurvula, apiculata, marginibus superne incurvis, basi altius bilobulata, lobulis basilaribus retusis in clinandrium quadrantibus, connectivo incrassato convexa, c. 0.42 cm longa. *Rostellum* porrectum, elongatum, concavo-caniculatum, triangulum, bifidum, laciniis acutis. *Stigma* transversum, margine dilatatum. *Ovarium* sessile etortum, 6sulcatum, glabrum, c. 0.75 cm longum.

Central Seran: Wai Kaniki, 600 m, bank vegetation (L. RUTTEN n.1398, leg. KORNASI 23 June 1918; "flowers white, lip yellow").

Allied to *P. lamellata* SCHLTR. and *P. constricta* J. J. S. both from New Guinea, but differing in the shape of the longer leaves, the lip being constricted nearly in the middle and the longer epichyl.

Description from herbarium and material preserved in alcohol.

GOODYERA R. BR.

Goodyera (sect. Otosepalum) **rubicunda** LNDL. in Bot. Reg. XXV (1839), 92; etc.

Central Seran: Hatoe Sosokoetai Walokene, 1000—1400 m, forest (L. RUTTEN n.2214, 11 May 1919).

Goodyera (sect. Eugoodyera) **Ruttenii** J. J. S. n.sp.

Caulis e basi decumbente racicante adscendens, c. 8.25 cm longus. *Folia* c. 3, ovata, leviter acuminata, acuta, basi rotundata, nervis 5 majoribus nonnullisque minoribus, oblique reticulato-nervosa, nervis venisque pallidis, c. 3.3 cm longa, 1.7 cm lata; petiolus canaliculatus, cum vagina tubulosa c. 1 cm longus. *Inflorescentia* dense multiflora, pedunculo glabro, c. 2 cm longo, pluribus vaginulis erectis longis angustis in bracteas vergentibus donato, rachide c. 1.6 cm longa. *Bracteae* flores aequantes, e basi triangulo-ovata longe lineari-acuminatae, concavae, glabrae, 3nerviae, ad c. 0.85 cm longae. *Flores* parvuli, c. 0.35 cm longi, glabri. *Sepalum dorsale* ovatum, apice leviter late acuminatum, obtusum, concavum, 1nervium, c. 0.26 cm longum, 0.15 cm latum. *Sepala lateral*ia oblique oblongo-ovata, apice leviter contracta, obtusa, concava, 1nervia, nervo leviter sigmoideo, c. 0.325 cm longa, 0.15 cm lata. *Petala* oblique lanceolato-subspathulata, dimidio inferiore basin versus sensim angustata, apice obtuso oblique obtuse apiculata, inaequilatera, concava, 1nervia, c. 0.23 cm longa, 0.05 cm lata. *Labellum* saccato-concavum, intus magnam partem processibus muriciformibus satis numerosis obsessum, sacco basi leviter rotundato-producto, apice in laminam parvam triangulam obtusam

explanatam utrinque plica a parte inferiore separatam et subrhombum productum, explanatum totum bene 0.3 cm longum, lobo apicali c. 0.05 cm longo fere 0.1 cm lato. *Gynostemium* absque anthera bene 0.15 cm longum, clinandrio alte excavato oblique truncato. *Anthera* cucullata, brevis, cordata, in rostrum triangulum acutum acuminata, fere 0.1 cm longa. *Rostellum* latum, in lacinias 2 subulatas incurvulas partitum. *Stigma* conspicuum. *Ovarium* sessile, glabrum, c. 0.47 cm longum.

South Seran: North of Wai Noea, 600 m, forest (L. RUTTEN n.1961, 29 January 1919; "leaves brownish green, veined greenish white, flowers dirty white").

Near *G. reticulata* BL. but with different petals. The material was not very good so that material preserved in alcohol is wanted for a better description.

Description from a single dried specimen.

TROPIDIA LNDL.

Tropidia pedunculata BL. Fl. Java. Orch. (1858), 103, t. 40; Miqu. Fl. Ind. Bat. III (1859), 746.

North Seran: Above Pasahari, 0—100 m, forest (L. RUTTEN n.148, 23 September 1917; "flowers white").

I have compared BLUME's type specimen, but I cannot find differences. The species was recorded by BLUME from Sumatra, BOERLAGE collected it on the Duizend Islands in the Java Sea and I saw it formerly in the Kew Herbarium from Timorlaoet.

In case all these plants should be correctly named the presence of the species in Seran would not be surprising, but abundant material is wanted to obtain certainty.

CORYMBORCHIS THOU.

Corymborchis Ruttenii J. J. S. n. sp.

Caulis erectus, validus, 78 cm superans, foliatus. *Folia* spiraliter disposita, oblongo-lanceolata, acuminata, acuta, apiculata, basi breviter contracta, nervis c. 9—11 majoribus subtus prominentibus numerosisque tenuibus, subtus furfuracea, papyracea, ad c. 35—38 cm longa, 8 cm lata; vaginae tubulosae, superne fissae, valde prominenter nervosae, c. 10 cm longae. *Inflorescentiae* axillares, plano-paniculatae, pedunculo vagina folii incluso compresso c. 10 cm longo, panícula c. 7 cm longa, ramulis lateralibus c. 9 alternatim bifariis patentissimis pedunculatis apicem versus decrescentibus ad c. 5 floris cum ramulo terminali, rachide vix flexuosa, bracteis ad basin ramulorum longe subulato-acuminatis ad c. 1.1 cm longis. *Bractae* basi rachidi adnatae cucullatae, triangulae, canaliculato-subulato-acuminatae, apice recurvae, dorso furfuraceae, 7nerviae, c. 0.65 cm longae. *Flores* mediocres. *Sepalum dorsale* lineari-spathulatum, superne leviter dilatatum, brevissime

acute acuminatum, etiam supra basin inconspicue dilatatum, canaliculatum, c. 2.65 cm longum, 0.36 cm latum. *Sepala lateral*ia oblique lineari-spathulata, canaliculata, c. 5nervia, costa media dorso prominente, ungue recto lineari, lamina falcata lanceolata apice canaliculato recurva acuta c. 1.1 cm longa 0.3–0.4 cm lata, tota 2.2 cm longa. *Petala* oblique spathulata, costa media dorso incrassata, c. 2.2 cm longa, ungue lineari, lamina oblique oblongo-elliptica, acuminata (?) undulata c. 1.15 cm longa 0.43 cm lata. *Labellum* spathulatum, costa media dorso valde incrassata, ungue marginibus incurvis gynostemium amplexente, superne sensim contracto, anguste oblongo-lageniformi, intus costis 2 longitudinalibus parallelis carosis basin non attingentibus in basi laminae falcato-divergentibus terminantibusque donato, c. 1.4 cm longo, inferne bene 0.4 cm, superne 0.25 cm lato, lamina angulato-suborbiculari, breviter apiculata, crispa, c. 0.75 cm longa et lata. *Gynostemium* elongatum, clavatum, c. 1.85 cm longum, clinandrio conspicuo concavo, pandurato, margine erecto antice utrinque in dentem conspicuum ovato-triangulum acutum sigmoideum producto, usque ad rostellii apicem c. 0.575 cm longo. *Anthera* cucullata, ovato-oblonga, apice subrecurvulo obtusa, sicco pallide membranaceo-marginata, c. 0.475 cm longa. *Rostellum* conspicuum, porrectum, e basi dilatata oblongo-contractum, in dentes 2 subulatos falcatos partitum, subtus convexum. *Stigma* margine inferiore in lobulos 2 reflexos semiovato-triangulos obtusos productum. *Ovarium* c. 1.2 cm longum.

North Seran: Maneo, 500–600 m, forest (L. RUTTEN n.235, 12 October 1917; "1 m high, flowers white").

Resembling *C. batjanica* J. J. S. but with a much longer rostellum and shorter stigmatic lobes. However, fresh flowers or material preserved in alcohol should be compared.

Description from herbarium.

COELOGYNE LNDL.

Coelogyne Rumphii LINDL. *Fol.Orch.Coel.*(1854), 36; etc.

West Seran: Wai Eti, 200–300 m, forest, bank vegetation (L. RUTTEN n.1562, 23 August 1918).

North-West Seran: Wai Hanoea, 250–400 m, forest (L. RUTTEN n.1793, 15 October 1918).

North Seran: Oeloe Wai Koea, c. 100 m, forest (L. RUTTEN n.48, leg. KORNASI 27 August 1917; "nat. name *Poepoenai*"). Wai Moeal, c. 200 m, forest (L. RUTTEN n.181, 20 September 1917). Wai Samal, lower course, 0–100 m, forest, bank vegetation (L. RUTTEN n.240, 8 October 1917). Between Kabailoe and Maneo, 200–400 m, forest (L. RUTTEN n.311, 10 October 1917).

South Seran: North of Wai Noea, forest (L. RUTTEN n. 1960, 29 January 1919).

Coelogyne calcarata J. J. S. n. sp.

Pseudobulbi 2folii, novelli vaginis superne accrescentibus imbricatis obtusis partim apiculatis sicco dense prominenter nervosis ad c. 4 cm longis inclusi. *Folia* immatura elliptica ad lanceolato-elliptica, obtusa, nervis c. 9 majoribus sicco subtus prominentibus pluribusque tenuibus, c. 6.5—7.75 cm longa, 2.3—2 cm lata. *Inflorescentia* e pseudobulbo immaturo, erecta, laxa c. 6flora, pedunculo nudo, c. 8.5 cm longo, rachide flexuosa, c. 5.5 cm longa, internodiis c. 0.8—1.1 cm longis. *Bractae* caducae. *Flores* ut videtur succedaneae expansi, macerati c. 2.2 cm longi, sepalis petalisque subparallelis. *Sepalum dorsale* ovato-oblongum, obtusum, minute conico-apiculatum, 5nervium, costa media dorso prominente, bene 0.2 cm longum, 0.7 cm latum. *Sepala lateralía* oblique oblonga, vix falcata, apicem versus angustata, obtusa, apiculata, in utraque parte canaliculae latae leviter convexa, 5nervia, costa media dorso carinata, c. 2.1 cm longa, 0.65 cm lata. *Petala* oblique lanceolata, obtusa, 5nervia, costa media dorso sulcata, c. 2 cm longa, 0.55 cm lata. *Labellum* gynostemium amplexans et longe superans, leviter recurvum, superne 3lobum, basi pedi gynostemii conspicue saccato-adnatum, subcalcaratum, c. 13nervium, costa media dorso saccata basi vix prominula, costis 4 longitudinalibus simplicibus glabris fere in medio labelli parce undulatis approximatisque, exterioribus paululum ultra medium terminantibus, interioribus paulo longioribus, explanatum totum c. 1.9 cm, usque ad apicem loborum lateralium 1.4 cm longum, fere 1.1 cm latum, sacco 0.25 cm longo, rotundato; lobi laterales gynostemium longe superantes, basi latissima inserti, apice vix producti, rotundati; lobus intermedius porrectus, oblongus, apice rotundatus, margine angustissime incurvulo subirregulari, c. 0.55 cm longus, 0.375 cm latus. *Gynostemium* (fecundatum) breviusculum, rectum, crassum, apicem versus cuneato-dilatatum et carnosum-subulatam, absque anthera c. 0.65 cm longum, apice trilobulato, lobulo dorsali parvo rotundato, lobulis lateralibus bene latioribus subrotundatis bicrenatis, clinandrio concavo, pede reverso, cum ovario angulum acutum cum gynostemio angulum obtusum faciente, basi labelli adnato, canaliculato, carnosum, c. 0.27 cm longo. *Anthera* cucullata, reniformis, apice abrupte recurva, obtusa, c. 0.2 cm lata. *Rostellum* conspicuum, latum. *Ovarium* acute 6costatum, c. 0.8 cm longum; pedicellus tenuior, 0.8 cm longus.

Central Seran: Goenoeng Moerkele, 2000—2500 m, forest on limestone (L. RUTTEN n.1475, leg. KORNASI 1 July 1918; "flower white, lip black").

This is an interesting species, a near ally of which is so far unknown to me. The only specimen at hand is, however, a very poor one so that better materials are wanted in order to complete the description.

Description from herbarium.

Coelogyne asperata LNDL. in Journ. Hort. Soc. IV (1849), 221; Fol. Orch. Coel. 3; in Pescat. t. 8; WARNER Orch. Alb. VII, t. 311; RCHB. F. in

WALP. Ann. VI (1861) 224; HOOK. F. Fl. Brit. Ind. V (1890), 835; VEITCH Man. Orch. pl. Coel. 31; PFITZ. et KRÄNZL. in Pflanzenr. IV.50.II.B.7 (1907), 76, fig. 26 A; RIDL. Mat. Fl. Mal. Penins. I (1907), 129; Fl. Mal. Penins. IV(1924), 131; AMES Orch. II (1908), 68.—*C. Lowii* PAXT. Mag. Bot. XVI (1850), 225; Lindenia XIII (1897), t.582.—*C. Edelfeldtii* F. v. MUELL. et KRÄNZL. in Oesterr.bot.Zeitschr.XLIV (1884), 421; in Pflanzenr. 1. c. 76.—*C. pustulosa* RIDL. in Journ.Bot.XXIV(1886), 353; PFITZ. et KRÄNZL. 1. c.73; SCHLTR. Orch.D.N.Guinea (1911), 105; Atlas (1925), t.XXXXI Nr.140.

West Seran: Wai Lantabi, 700—1000 m, forest (L. RUTTEN n.1239, leg. KORNASI 4 May 1918).

North Seran: Kali Koea, forest on hill (L. RUTTEN n.183 leg. KORNASI 25 August 1917). Lower course Samal-river, 0—100 m, forest (L. RUTTEN n.257, 8 October 1917).

Central Seran: Kampoeng Hatoeolo, 600 m, forest (L. RUTTEN n.1539, leg. KORNASI 5 July 1918).

South-east Seran: Wai Kaba, 0—100 m (L. RUTTEN n.866, leg. KORNASI 21 January 1918).

South Seran: Wai Miniem, 0—200 m, forest, epiphytical (L. RUTTEN n.1939, 26 January 1919). Wai Noea, forest, bank vegetation (L. RUTTEN n.1951, 28 January 1919).

This plant is known from the Malay Peninsula and the Philippines, Sumatra, Borneo, Halmahera as far as New Guinea, so that its presence in Seran is not astonishing.

PHOLIDOTA LNDL.

Pholidota imbricata LNDL. in HOOK. Exot. Fl. II (1825), t. 138; etc. var. **papua** J.J.S. in Bulq. Jard. Bot. Buit. 3e ser. I (1919), 95.

East Seran: Wai Boela, 0.—200 m, forest (L. RUTTEN n. 2159, 12—13 April 1919; "epiphytical, flowers brownish white").

The robust form with a long stiff peduncle, which is common in New Guinea, has also been collected on the Kai Islands, in Ambon and in central Java.

PLOCOGLOTTIS BL.

Plocoglottis (sect. *Euplocoglottis*) **seranica** J.J.S. n. sp.

Rhizoma elongatum, radicans, initio vaginis tubulosis deinde in fibras solutis tectum, pars adest c. 10 cm longa, internodiis (sicco) c. 0.3—1 cm longis. *Pseudobulbi* rhizomati similes, remoti, sicco c. 2.1—2.7 cm longi, 1folii. *Folium* erectum, petiolatum, lanceolato-ellipticum, sensim leviter acuminatum, basi acutum, nervis c. 5 majoribus subtus prominentibus pluribusque tenuibus, sicco papyraceum, c. 17 cm longum, 3.5—3.6 cm latum; petiolus canaliculatus, 3costatus, c. 4.25—5 cm longus. *Inflorescentia* erecta, laxe multiflora, diu flores gignens, pedunculo puberulo, c. 24.5 cm longo, vaginulis c. 5 tubulosis acutis ad c. 1.8 cm longis donato, rachide dense patenter

hirtella, 13 cm superante, internodiis ad c. 0.8 cm longis. *Bracteae* reflexae, incurvae, concavae, apice canaliculatae, e basi ovato-triangula sensim longe acuminatae, acutae, parce ciliolatae, basi intus extusque parce puberulae, nervis 3 dorso prominentibus, ad c. 0.9 cm longae, 0.3 cm latae. *Flores* patentes, c. 1.7 cm longi, sepalis dorso puberulis. *Sepalum dorsale* erectum, cum ovario angulum subrectum faciens, incurvum, concavum, basi tantum leviter convexum, anguste oblongum, acuminatum, marginibus apice incurvulis, acutiusculum, c. 1.13 cm longum, 0.375 cm latum. *Sepala lateralía* reflexa, oblique lanceolata, subsigmoidea, marginibus apice incurvulis breviter acuminata, acuta, basi excepta valde concava, c. 1.2 cm longa, 0.4 cm lata. *Petala* divergentia, e basi oblique rotundato-dilatata lineari-contracta, falcata, apicem versus angustata, acuta, apice canaliculata, glabra, 3nervia, c. 0.87 cm longa, basi 0.24 cm, supra basin bene 0.1 cm lata. *Labellum* unguiculo brevi pedi gynostemii adnatum, calcar minutum recurvum lateraliter compressum obtusum in forma costae longitudinalis in paginam inferiorem labelli decurrens fere 0.1 cm longum formans, lamina inferne membranis triangulis gynostemio elastice adnata, c. 9nervia, subquadrata, supra convexa cum canalicula longitudinali, subtus concava, apice in appendicem arcute recurvum e basi triangula subulatam acutissimam producta, c. 0.6 cm longa, 0.475 cm lata, explanata quadrangula, angulis basilaribus rotundata, apice vix dilatata truncata cuspidate imposita, angulis anticis obtusis minuteque erosulis, tota c. 0.725 cm longa, apice 0.6 cm lata, cuspidate 0.16 cm longa. *Gynostemium* erectum cum ovario angulum obtusum faciens, rectum, apice tantum incurvum, obtusum, oblongum, marginibus in utraque stigmatis parte rotundato-dilatatum, dorso convexum cum canaliculis longitudinalibus satis conspicuis, subtus longitudinaliter canaliculatum, dorso pilis raris brevibus inspersum, absque anthera 0.475 cm longum, clinandrio alte excavato, auriculis latissimis brevibus, pede porrecto, recurvo, dorso puberulo, c. 0.1 cm longo. *Ovarium* pedicellatum dense puberulum, c. 1.3 cm longum.

Central Seran: Kampoeng Hatoeolo, 600 m, forest (L. RUTTEN n.1556, 6 July 1918; "flowers yellow, lip white").

Resembling *P. longicuspis* J. J. S. from New Guinea but the leaf is much narrower, the flowers are smaller with the petals more widened at their base.

Description from herbarium.

Plocoglottis (sect. *Porphyrophyllum*) **Lowii** RCHB. F. in Gard.Chron. 1865, 434; etc.

West Seran: Goenoeng Makone, 500 m, forest (L. RUTTEN n.1255, leg. KORNASI 5 May 1918).

PHAJUS LOUR.

Phajus (sect. *Euphajus*) **montanus** SCHTR. Orch.D.N.Guinea (1912) 374, Fig. Atl. t. CXXXII, Nr. 495; J. J. S. in Nova Guinea XII (1915), 203. var. **seranicus** J. J. S. n.var.

Pseudobulbi approximati, parvi, omnino vaginus inclusi, paucinodes, c. 4 cm longi, vaginis c. 6 erectis adpressis imbricantibus superioribus accrescentibus acutis valde 5carinatis pallide viridibus obscurius nervosis ad c. 23 cm longis sensim in folia vergentibus ad basin, c. 4—5folii. *Folia* erecta, petiolata, leviter recurvula, lanceolata, apicem versus angustata, leviter acuminata, acuta, nervis 7 subtus bene prominentibus, inferne longitudinaliter plicata, ceterum inter nervos convexa, herbaceo-coriacea, nitide viridia, subtus opaca, c. 64—83 cm longa, 11.5 cm lata; petiolus canaliculatus, nervis 5angulatus, costa media acute carinata. *Inflorescentia* e nodis inferioribus, erecta, laxe multiflora, pedunculo sectione transversa elliptico, c. 67 cm longo, vaginulis c. 6 adpressis tubulosis acutis valde carinatis pallide viridibus apice viridibus ad c. 8 cm longis donato, rachide c. 41 cm longa. *Bractee* caducae. *Flores* magni, patentissimi, c. 9.5—11 cm diam., sepalis petalisque patentissimis, recurvulis, leviter convexis apice concavis, opacis, intus cinnamomeis dorso candidis in floribus adultis flavescens, sepalis medio flavescens-brunneis anguste flavescens-albo-marginatis apice flavescens-costis media dorso incrassatis, petalis margine latiore albis apice purpureo-suffusis costa media dorso sulcatis. *Sepalum dorsale* c. 5.7 cm longum, 1.4 cm latum. *Sepala lateralalia* 5.9 cm longa, 1.45 cm lata. *Petala* 5.6 cm longa, 1.2 cm lata. *Labellum* calcaratum, 3lobum, ungue c. 1.1 cm longo basi gynostemii in formam tubi carnosii intus puberuli adnatum, candidum, in flore adulto flavescens, lobis lateralibus antice loboque intermedio margine angusto albo excepto purpureum, apicem lobi intermedii versus pallidius, intus striis 3 longitudinalibus parallelis candidis notatum, stria intermedia apicem attingente, striis exterioribus brevioribus inferne purpureo-notatum, dorso album, basi purpureo-suffusum, antice purpureum apicem versus pallidius, intus costis 2 longitudinalibus parallelis approximatis humilibus latis planis linearibus sulco angusto separatis margine exteriori basi excepto elevatulis ante basin lobi intermedii evanescentibus, costa tertia angustiore convexa verruculosa infra basin decurrente basi longitudinaliter sulcata in lobo intermedio, parte inferiora medio etiam in costis pilosum, subtus longitudinaliter sulcatum, explanatum totum c. 5.3—5.7 cm longum, 3.2—3.5 cm latum; lobi laterales incurvi, gynostemium longe superantes, antice haud vel vix producti, rotundati, undulati, minute repandulo-crenulati, mesochylium transverse quadrangulum basin versus paulo angustatum rotundatumque c. 2.5 cm longum formantes; lobus intermedius porrectus, apice recurvulus, lateribus superne incurvis, transverse quadrangulus, apice leviter dilatato breviter rotundato bilobulo cum lobulo plus minusve distincto in sinu, minute erosulo-crenulatus, c. 1.2—1.45 cm longus, 1.75 cm latus; calcar reversum, anguste conicum, album, c. 0.6—0.7 cm longum. *Gynostemium* superne alato-dilatatum et apice utrinque intra marginem excavatione donatum, dorso superne puberulum, subtus praesertim versus basin pilosum, purpurascens, subtus lateribusque purpureum, clinandrio alte excavato margine apicali crenulato. *Anthera* alba, puberula. *Rostellum* triangulum, acutum,

album. *Ovarium* 6sulcatum, 1.5 cm longum, cum pedicello 1.1 cm longo clavatum nitiduleque virescenti-album.

Central Seran: Hatoeolo (L. RUTTEN, liv. pl. cult. in Hort.Bog. sub n.188). Kaniki, c. 600 m, forest (L. RUTTEN n.529, leg. KORNASI 24 November 1917). Wai Sima, 200—600 m, forest, bank vegetation (L. RUTTEN n.1381, leg. KORNASI 21 June 1918).

This form differs from the Papuan specimens in the larger flowers being pure white outside when fresh, and the less distinct keels of the lip.

It is a beautiful plant well worth cultivating.

Description from a cultivated specimen.

Phajus (sect. *Bulbophajus*) **flavus** LNDL. Gen. et sp.Orch.128: etc.

Central Seran: Maoti-pass, south side, 600—1000 m, forest (L. RUTTEN n.1980, 30 January 1919).

Phajus (sect. *Pesomeria*) **amboinensis** Bl. Mus.Bot. Lugd. Bat. II (1856) 180; etc.

West Seran: Loki, 0—100 m, strand vegetation (L. RUTTEN n.1203 leg. KORNASI 1 May 1918). Wai Oeli, Kawa, 0—200 m, forest (L. RUTTEN n.1856, 9 November 1918).

North Seran: Oeta valley, 0—20 m, forest (L. RUTTEN n.2032, 5 February 1919).

CALANTHE R. BR.

Calanthe (sect. *Rhodochilus*) **reconditiflora** J. J. S. n.sp.

Pseudobulbi approximati, 5—6folii, vaginis pluribus imbricatis superioribus accrescentibus ad basin. *Folia* lineari-lanceolata. sensim longe angustata, acutissima, basi sensim in petiolum angustata, nervis c. 7 validioribus pluribusque tenuibus, rigidula (sicco), c. 25—56 cm longa, 1.6—3.1 cm lata; petiolus canaliculatus, prominenter nervosus, cum vagina basin versus sensim dilatata 15—28 cm longus. *Inflorescentiae* ad c. 3, axillares, erectae, foliis multo breviores, dense multiflorae, quaquaversae, pedunculo c. 9.5—10 cm longo, vaginulis conspicuis foliaceis lanceolatis sensim longe acuminatis basi breviter tubulosis ad c. 5.1—6.3 cm longis omnino oblecto, rachide 8.5—1.0 cm longa. *Bractee* densissimae, erectae, adpressae, imbricantes, ovato-lanceolatae, sensim longe angustatae, acutae, inferioribus exceptis apice involutae (an semper?), concavae, sicco prominenter nervosae, ad c. 5.5 cm longae, sicco 1—1.2 cm latae. *Flores* inter bracteas absconditi, parvi, bracteis multo breviores, erecti, macerati c. 0.7 cm lati, 0.95 cm longi. *Sepalum dorsale* basi erectum, incurvum, concavum, oblongum, apice leviter contractum, obtusum, 3nervium, c. 0.8 cm longum, 0.375 cm latum. *Sepala lateralialia* porrecta, divergentia, revoluta, oblique oblonga, vix falcata apicem versus angustata, obtusa, apice concava, 3nervia, c. 0.67 cm longa, fere 0.3 cm lata. *Petala* patentia, recurva, oblique elliptica vel oblongo-elliptica, falcata,

obtusa, basi angustata, 3nervia, c. 0.7 cm longa, bene 0.3 cm lata. *Labellum* calcaratum, longitudine c. 0.375 cm gynostemio in formam tubi lateraliter compressi alti a latere visi quadranguli adnatum, lamina subsimplici, recurva, angulis apicalibus incurvis spurie acuta, ut videtur basi costulis 2 longitudinalibus parallelis superne costula 1 longitudinali instructa, carnosula, oblonga, explanata basi apiceque utrinque leviter rotundato-dilatatis subpandurata, apice obtusissimo medio brevissime producta, bene 0.3 cm longa, basi apiceque 0.2 cm, medio 0.17 cm lata; calcar deorsum spectans, ovario parallelum, oblongo-subobovoideum, obtusum, dorso subrectum, antice rotundato-ventricosum, c. 0.37 cm longum, 0.25 cm latum. *Gynostemium* satis conspicuum, crassum, dorso convexum, cum ovario angulum obtusum faciens, inclinatum, c. 0.45 cm longum, clinandrio alte excavato, transverso, pariete postico apice porrecto leviter rotundato, lobis stigmaticis extus convexis. *Ovarium* subsessile, crassum, 6sulcatum, tortum, glabrum, c. 0.925 cm longum. *Capsula* erecta, subsessilis, fusiformis, apice contracto gynostemio sicco coronata, costis 3 validis 3 tenuioribus, tota c. 1.75 cm longa, apice contracto c. 0.34 cm longo, pedicello vix 0.1 cm longo, in valvas 3 anguste lanceolatas 3 lineares basi apiceque connatas dehiscens.

Central Seran: Goenoeng Moerkele, 2000–2500 m, forest on limestone (L. RUTTEN n.1488, 1 July 1918; "flowers white, lip yellow").

A near ally of the Papuan *C. Manis* J.J.S. but with much broader leaves, stronger inflorescences with more adpressed bracts, and as it seems, differently coloured flowers.

Description from herbarium.

Calanthe (sect. *Styloglossum*) **Ruttenii** J.J.S. n. sp.

Rhizoma repens, breve, radicibus crassis. *Pseudobulbi* 5folii, nonnullis vaginis ad basin. *Folia* erecta, petiolata, lanceolata, sensim longissime acute acuminata, basi sensim in petiolum angustata, nervis 6–7 validioribus subtus prominentibus, sicco papyracea, c. 45–72 cm longa, 3.75–6.5 cm lata; petiolus canaliculatus, valde prominenter nervosus, cum vagina 22–33 cm longus. *Inflorescentiae* e nodis pseudobulborum, erectae, validae, apice dense multiflorae, glabrae, pedunculo c. 29–34 cm longo, vaginulis c. 6 magnis basi tubulosis longe subulato-apiculato-acuminatis superioribus accrescentibus ad c. 5.5–6.75 cm longis et superne 1 vel paucis vaginulis caducis donato, rachide c. 13–21 cm longa. *Bracteae* caducae. *Flores* c. 1.85 cm longi. *Sepalum dorsale* oblongo-ellipticum, acute apiculatum, concavum, 7nervium, c. 1 cm longum, bene 0.4 cm latum. *Sepala lateralalia* oblique oblonga, acuta, apiculata, basi obliqua basi calcaris adpressa, 6nervia, c. 1 cm, margine antico 1.1 cm longa, 0.375 cm lata. *Petala* oblique elliptica, sepalis latiora, 5nervia, fere 1 cm longa, 0.46 cm lata. *Labellum* 3lobum, calcaratum, longitudine c. 0.475 cm gynostemio in formam tubi lateraliter compressi apicem versus altioris subtus vix ventricosi adnatum, totum c. 1.2 cm, usque ad apicem ovarii c. 0.9 cm longum; lobi laterales parvi,

oblique quadranguli, basi c. 0.16 cm lati; lobus intermedius multo major, e basi contracta cuneato- apice transverse ovali-dilatatus, c. 0.35 cm longus, 0.45 cm latus; calcar reversum, cum ovario angulum acutum faciens, clavatum, leviter sigmoideum, obtusum, c. 0.7 cm longum. *Gynostemium* clavatum, lobis stigmaticis extus convexis. *Pollinia* 8, clavata, glandula subulata. *Ovarium* teres, c. 0.8 cm longum; pedicellus tenuior, 1.25 cm longus.

West Seran: North of Melilia, 550–750 m, forest, not common (L. RUTTEN n.1634, 4 August 1918; "flowers white, lip orange, darkest at the base").

A near ally of *C. speciosa* LNDL., but with smaller flowers and a different lip. In the shape of the spur it approaches more *C. rajana* J.J.S. from Borneo and *C. clavicalcar* J.J.S. from Sumatra.

Owing to the fact the material was not very good the description wants some additions.

Description from herbarium.

Calanthe (sect. *Styloglossum*) **tunensis** J.J.S. in Bull. Inst. Bot. Buit. VII (1900), 3; in Ic. Bog. II (1903), 70, t. CXIII A.

West Seran: Between Loemoli and Lohia Tala, 500–800 m, forest (L. RUTTEN n.1572, 24 August 1918). South-west of Walokone, 600–1000 m, forest (L. RUTTEN n.2201, 9 May 1919).

Central Seran: Wai Sima, 400–600 m, forest (L. RUTTEN n.1376, leg. KORNASI 21 June 1918). Goenoeng Moerkele, 1000–1900 m, forest (L. RUTTEN n.1453, leg. KORNASI 30 June 1918). Hatoemete-pass, south of Manoesela, 500–1000 m, forest on limestone (L. RUTTEN n.600, leg. KORNASI 29 November 1917).

Calanthe (sect. *Eucalanthe*) **seranica** J.J.S. n. sp.

Rhizoma repens, radicibus crassis villosis. *Pseudobulbi* parvi, bifolii (?). *Folia* elliptica, acuminata, acuta, basi in petiolum acuminata, glabra, undulata, nervis 5 majoribus subtus prominentibus pluribus tenuibus, viridia vel more *Plocoglottis* pallide maculata, c. 8.5–18 cm longa, 1.9–5.7 cm lata; petiolus canaliculatus, nervis prominentibus angulatus, cum vagina c. 5–12 cm vel plus longus. *Inflorescentia* erecta, laxa pluri-multiflora, pedunculo puberulo, c. 23–51 cm longo, vaginulis c. 3 tubulosis puberulis ad c. 1.8 cm longis superne decrescentibus donato, rachide puberulo, 8 cm superante. *Bractee* persistentes, oblongo-triangularae, acuminatae, acutae, subglabrae, 3nerviae, c. 0.7 cm longae, 0.225 cm latae. *Flores* parvi, fere 1.4 cm longi, sepalis petalisque reflexis, glabris (vel subglabris ?). *Sepalum* dorsale ellipticum, obtusum, convexum, apice incurvulum, 3nervium, fere 0.6 cm longum, 0.3 cm latum. *Sepala* lateralialia oblique elliptica, obtusiuscula, leviter concava, praesertim margine postico anguste incurva, 3nervia, c. 0.6 cm longa, fere 0.3 cm lata. *Petala* oblique sublan-ceolata ad sublinearia, obtusa vel breviter subtridentata, 1nervia, c. 0.56 cm longa, 0.13–0.15 cm lata. *Labellum* 3lobum, calcaratum, longitudine c. 0.2

cm gynostemio in formam tubi adnatum, callo antice tripartito verruculoso e costis brevibus longitudinalibus obtusis paulo inaequilongis in basi lobi intermedii terminantibus in basi laminae, usque ad apicem ovarii c. 0.8 cm longum, lamina tripartita, c. 0.6 cm longa, 0.7 cm lata; lobi laterales semi-reflexi, porrecti, divergentes, oblique oblongi, obtusi, convexi, cum lobo intermedio angulum anguste acutum facientes, c. 0.34—0.35 cm longi, 0.18—0.2 cm lati; lobus intermedius porrectus, ambitu oblongo-quadrangulus, apicem versus paululum dilatatus, bifidus, bene 0.4 cm longus, 0.26 cm, basi 0.175 cm latus, laciniis subparallelis, oblique oblongis, rotundato-obtusis, convexis, c. 0.16 cm longis, 0.125 cm latis; calcar reversum, leviter recurvulum, clavatum, obtusum, c. 0.725 cm longum. *Gynostemium* basi contractum, c. 0.32 cm longum, lobis stigmaticis porrectis, triangulis, anguste obtusis, intus concavis, extus convexis. *Ovarium* c. 0.5 cm longum, cum pedicello 0.25 cm longo dense velutino-puberulum.

Central Seran: Goenoeng Moerkele, 2000—2500 m, forest on limestone (L. RUTTEN n.1482, leg. KORNASI 1 July 1918; "flowers green, lip white"). Hatoemete-pass, south of Manoesela, 1500—1700 m, forest on limestone (L. RUTTEN n.602 leg. KORNASI 29 November 1917, "flowers white").

An ally of *C. flava* HASSK. but with differently coloured flowers, a clubbed spur and very different callosities of the lip.

Description from herbarium. N. 602 is represented by a leaf and an inflorescence, n.1482 by a very small specimen.

Calanthe (sect. *Eucalanthe*) ***veratrifolia*** R. BR. in Bot.Reg. IX (1823), t.270; etc.

North-west Seran: Tandjong Kiring and Wai Kawa, 600—1000 m, forest (L. RUTTEN n.1822, 21 October 1918).

North Seran: Oeloe Kalitoea, c. 100 m, forest (L. RUTTEN n.44, leg. KORNASI 27 August 1917; "vern. name *Kapata*").

Central Seran: Manoesela, 700 m, forest (L. RUTTEN n.1424, leg. KORNASI 27 June 1918). Hatoemete-pass, south of Manoesela, 1500—1700 m, forest on limestone (L. RUTTEN nrs. 594 and 595, leg. KORNASI 29 November 1917).

East Seran: Goenoeng Oeseil, 100—600 m, forest (L. RUTTEN 2150, 11 April 1919).

South-east Seran: Wai Takoeman, 100—200 m, bank vegetation (L. RUTTEN n.1005, leg. KORNASI 13 February 1918).

South Seran: North of Laimoe, c. 500 m, forest (L. RUTTEN n.290, leg. KORNASI 15 October 1917).

The numbers cited above show some differences especially as to the wideness of the lobes of the lip and the length of the spur.

Calanthe (sect. *Eucalanthe*) ***moluccensis*** J. J. S. in Bull. Jard. Bot. Buit. 3e sér. VIII (1926), 39.

West Seran: Goenoeng Makone, 500 m, forest (L. RUTTEN n.1253, 5 May 1918). North of Melilia, 550—750 m, forest (L. RUTTEN n.1624, 4 September 1918).

SPATHOGLOTTIS BL.

Spathoglottis plicata BL. Bijdr. (1825), 401; Tab. fig. 76; etc.

Ambon: Wai Batoe Gadj, 0—100 m, bank vegetation (L. RUTTEN n.1128, leg. KORNASI 11 April 1918). Wai Joea mati, 200—300 m, forest, bank vegetation (L. RUTTEN n.1172, 18 April 1918).

North Seran: Wai Toeloearang, above Solea, c. 120 m, forest (L. RUTTEN n.77, leg. KORNASI 30 August 1917; "vern. name *boerè*") Wai Ake Ternate, 200—400 m, bank vegetation (L. RUTTEN n.1067, leg. KORNASI 1 March 1918; "flowers white").

Central Seran: Environs of Seti, 200 m, forest, bank vegetation (L. RUTTEN n.314, 20 October 1917). Between Seti and Kobi, 0—200 m, forest, bank vegetation (L. RUTTEN n.376, 22 October 1917). Roho, 100—200 m, forest (L. RUTTEN nrs. 494 and 506, leg. KORNASI 22 November 1917).

East Seran: Wai Boela, 0—200 m, forest (L. RUTTEN n.2156, 12—13 April 1919).

South-east Seran: Wai Tekoeman, 100—200 m, bank vegetation (L. RUTTEN n.1009, leg. KORNASI 13 February 1918). Kota, 100—200 m, bank vegetation (L. RUTTEN n.1011, leg. KORNASI 14 February 1918). Wai Tok, 100—200 m, bank vegetation (L. RUTTEN n.1061, leg. KORNASI 28 February 1918; "flowers white, lip yellow").

Spathoglottis Vanvuureonii J. J. S. in Bull. Jard. Bot. Buit. 2e sér. XIII (1914), 3.

Ambon: Kali Batoe Gadj, (L. RUTTEN n.1128, leg. KORNASI 11 April 1918; "flowers light purple"). Kampoeng Hoekoerila, 0—100 m, forest-road (L. RUTTEN n.1146, leg. KORNASI 16 April 1918; "flowers white").

ERIA LNDL.

Eria (sect. *Goniorhabdos*) **javanica** BL. Rumphia II (1836), 23; etc.

West Seran: Wai Nola, 150—300 m, forest, bank vegetation (L. RUTTEN n.1591, 28 August 1918).

North Seran: West of Seleman, 0—100 m, beach vegetation on limestone (L. RUTTEN n.2014, 3 February 1919).

Eria (sect. *Polyura*) **murkelensis** J. J. S. n.sp.

Planta valida, radicibus tenuibus, laxius pilosis. Caules (1 adest) *carnosi, c. 31 cm longi, magna parte vaginulis magnis tubulosis sicco tenuiter prominule nervosis superne laxioribus majoribusque ad c. 6 cm longis tecti, parte superiore flexuosa foliataque, internodiis partis vaginatae ad c. 6.5 cm longis, internodiis foliiferis multo brevioribus. Folia* c. 6, *patentia, lanceolata apice an-*

gustata, oblique obtusa, basi contracta, nervis c. 13 sicco prominentibus, sicco tenuiter coriacea, c. 16—20 cm longa, 1.65—2.6 cm lata, vaginis brevissimis. *Inflorescentiae* omnino e nodis caulium, satis longae, breviter pedunculatae, valde multiflorae, pedunculo c. 1.5—2 cm longo, rachide ad c. 14 cm longa. *Bracteae* reflexae ad patentissimae, incurvae, oblongae vel oblongo-triangularae, apicem versus angustatae, acutae vel acutiusculae, 3nerviae, ad c. 0.7—0.76 cm longae, 0.27—0.3 cm latae, superiores decrescentes. *Flores* macerati c. 0.95 cm longi, sepalis petalisque subparallelis. *Sepalum dorsale* lanceolatum, apice breviter acutatum, acutum, concavum, 3nervium, c. 0.875 cm longum, 0.275 cm latum. *Sepala lateral*ia mentum brevissimum obtusum bene c. 0.1 cm longum formantia, oblique lanceolato-triangulara, canaliculato-apiculato-acuminata, concava, 3nervia, c. 0.9 cm longa, 0.3 cm lata. *Petala* oblique ovato-oblonga, acute acutata, concava, 3nervia, c. 0.7 cm longa, 0.26 cm lata. *Labellum* leviter 3lobum, 3nervium, costis 2 curvatis marginibus loborum lateralium subparallelis medio altissimis a basi usque ad basin lobi intermedi, explanatum ambitu ovatum, e basi suborbiculari in lobum intermedium contractum, c. 0.4 cm longum, 0.2 cm latum; lobi laterales erecti, angulato-rotundati, basi lati, cum lobo intermedio angulos obtusos facientes; lobus intermedius porrectus, marginibus antice incurvulis, oblongo-quadrangulus vel potius apice obtusangule acutato lobulo minuto apiculato quinquangularis, c. 0.2 cm longus, 0.13 cm latus. *Gynostemium* rectum, dorso convexum, cum anthera fere 0.2 cm longum, clinandrio suborbiculari concavo cum costula longitudinali, auriculis brevibus, latis, rotundato-truncatis. *Anthera* cucullata, semielliptica, obtusa, basi paulum dilatata 2lobula, lobulis late retusis, c. 0.075 cm lata. *Stigma* transverse ovale, fere orbiculare. *Pes gynostemii* cum ovario angulum acutum cum gynostemio angulum obtusum faciens, oblongo-quadrangulus, apicem versus leviter angustatus, truncatus, bene 0.1 cm longus. *Ovarium* pedicellatum fere 1.1 cm longum.

Central Seran: Goenoeng Moerkele, 2000—2500 m, forest on limestone (L. RUTTEN n.1501, leg. KORNASI 1 July 1918; "flowers light yellow").

Near *E. Woodiana* AMES from the Philippines but with the leaves narrower, much larger flowers and the lip provided with two keels.

Description from a single dried specimen with two flowers.

***Eria* (sect. *Polyura*) *piruensis* J. J. S. n. sp.**

Rhizoma breve, repens, ramosum, vaginis brevibus tubulosis, radicibus tenuibus. *Caules* approximati, subclavati, sicco c. 7—10 cm longi, vaginis inferioribus brevibus tubulosis approximatis, superioribus laxioribus majoribusque, internodiis summis brevibus, apice 3—4folii. *Folia* anguste lanceolata, oblique obtusa, praesertim summa basi contracta, nervis majoribus c. 7 sicco subtus leviter prominulis, c. 7—10 cm longa, 0.8—1 cm lata. *Inflorescentiae* in excavationibus caulibus partis foliatae, foliis breviores, brevissime pedunculatae laxae pluriflorae, quaquaversae, glabrae, rachide angulata, c. 4.25 cm longa. *Bracteae* reflexae, ovatae, acutae, concavae, 3nerviae, ad c. 0.43 cm longae, 0.24 cm

latae. *Flores* c. 11, c. 0.675 cm longi, sepalis petalisque parallelis. *Sepalum dorsale* lanceolatum, apicem versus angustatum, obtusiusculum, valde concavum, 3nervium, c. 0.7 cm longum, fere 0.2 cm latum. *Sepala lateral*ia vix mentum formantia, oblique lanceolata, obtusiuscula, minute apiculata, concava, 3nervia, c. 0.7 cm longa, 0.175 cm lata. *Petala* lanceolata, obtusa, minute apiculata, concava, 3nervia, c. 0.6 cm longa, 0.13 cm lata. *Labellum* leviter undatum, concavum, leviter 3lobum, 3nervium, nervis exterioribus in parte lata intus prominulis et bene supra basin furcatis, costa media superne prominula, explanatum ambitu e basi cuneata ovatum, c. 0.3 cm longum, 0.15 cm latum; lobi laterales erecti, breves, subaequilateraliter trapeziformes, basi lati, apice truncati, angulis rotundati; lobus intermedius porrectus, basi sensim in lobos laterales dilatatus, oblongo-quinquangularis, apicem versus angustatus, apice breviter obtuse triangulo-contractus, margine infra apicem plus minusve lobulato-irregulari, c. 0.16 cm longus, basi bene 0.1 cm latus. *Gynostemium* rectum, dorso convexum, apice truncatum, absque anthera c. 0.1 cm longum, clinandrio concavo, suborbiculari. *Anthera* cucullata, rotundato-quadrangula, apice incrassata late rotundata-truncata, basi bilobula, lobulis late retusis, c. 0.05 cm lata. *Stigma* suborbiculare. *Pes gynostemii* cum ovario angulum acutum cum gynostemio angulum obtusum faciens, fere rectus, lineari-oblongus, c. 0.075 cm longus. *Ovarium* 6sulcatum, cum pedicello c. 0.5 cm longum.

West Seran: Piroe, 0—300 m, epiphytical (L. RUTTEN n.2267, April 1919).

This species seems to be very similar to *E. microglossa* SCHLTR. from New Guinea, but it has 3—4leaved stems and ovate bracts. The sepals are as large as in the said species but the lip is rather much smaller and the pedicel shorter.

The description of the thickened ridges of the lip should be compared with fresh material or with flowers preserved in alcohol. The colour has not been noted.

Description from herbarium with only two flowers.

Eria (sect. Hymeneria) **littoralis** T. et B. in Nat. Tijdschr. Ned. Ind. XXIV (1862), 312; etc.

North Seran: Wahai, Batoe Kapiroh (L. RUTTEN without number, leg. KORNASI 11 October 1917).

Eria (sect. Hymeneria) **moluccana** SCHLTR. et J. J. S. in Orch. Amb. (1905), 74.

North-west Seran: Between Sanimala and Noniali, 0 m, beach vegetation (L. RUTTEN n.1781, 10/13 October 1918).

South-east Seran: Hatoemete, 0 m, beach (L. RUTTEN nrs.643 and 808, leg. KORNASI 4 December 1917 and 15 June 1918).

Eria (sect. *Trichotosia*) **glabrifolia** J. J. S. n.sp.

Caules validi, elongati, simplices, teretes, glabri, ad nodos tantum adpresse rufo-pilosi, 70 cm longe superantes, internodiis c. 3–5 cm longis. *Folia* patentia, loriformia, apice valde oblique bilobulata, lobulo brevior dentiformi, lobulo longiore semitriangulo obtuso, glabra, nervis majoribus c. 9–11 sicco subtus prominentibus, sicco rigide coriacea, ad c. 20–21 cm longa, 2.3–2.4 cm lata, lobulo longiore ad c. 1.1 cm longo, vaginae tubulosae, internodiis paulo longiores, apice truncatae, glabrae, initio longe ciliatae. *Inflorescentiae* e nodis, 2 vaginas perforantes, patentes, deorsum spectantes, laxe pluriflorae, pedunculo longe patentissime rufo-piloso, c. 3.5–4.5 cm longo, vaginulis c. 3 brevibus tubulosis amplis infundibuliformibus truncatis breviterque obtuse contractis ad oblique truncatis parce pilosis superioribus maximis ad c. 1.1–1.4 cm longis donato, rachide plus minusve flexuosa, indumento pedunculi, ad c. 11–15flora, internodiis c. 0.6–1.5 cm longis. *Bractee* patentissimae ad reflexae, ovali-ovatae, acuminatae, acutae, concavae, parce ciliatae, ad c. 2.2 cm longae, 1 cm latae, superiores minores longius acuminatae. *Flores* mediocres, macerati c. 1.1 cm longi, sepalis dorso longe patenter sublaxe rufo-pilosis. *Sepalum dorsale* lineari-triangulum, apicem versus sensim angustatum, obtuse calloso-apiculatum, concavum, c. 1 cm longum, 0.25 cm latum. *Sepala lateral*ia cum pede gynostemii mentum conicum cum ovario angulum acutum faciens obtusum dorso rectum c. 0.4 cm longum formantis, oblique triangula, apice longe angustato conduplicata incrassataque c. 1 cm, margine antico 1.3 cm longa, basi 0.7 cm lata. *Petala* oblique anguste lanceolata, leviter acuminata, acuta, concava, superne irregulariter marginata, glabra, 3nervia, c. 0.9–0.95 cm longa, 0.2 cm lata. *Labellum* ambitu spathulatum, 3lobum, e basi cuneata in lobos laterales dilatatum, 3costatum, costis exterioribus e basi angusta superne incrassatis acutatis ad basin lobi intermediarii terminantibus, costa media angusta usque in medium lobi intermediarii producta ubi paululum incrassata muriculato-puberulaque, explanatum totum c. 1.15 cm, usque ad apicem loborum lateralium bene 0.7 cm longum, ad lobos laterales c. 0.55 cm latum; lobi laterales oblique quadranguli, margine exteriori rotundati serrulatique; lobus intermedius valde mancus, intus papillosus, c. 0.375 cm longus. *Gynostemium* (fecundatum) c. 0.4 cm longum, clinandrio transverse ovali, concavo, auriculis late rotundato-truncatis. *Anthera* cucullata, ambitu transverse quadrangula, apice breviter 3lobula medio paululum producta, obtusa, c. 0.14 cm lata. *Pes gynostemii* cum ovario angulum acutum faciens, rectus, late linearis, truncatus, concavus, intus papillosus, c. 0.45 cm longus. *Ovarium* (fecundatum) sessile, longe patenter grosse rufo-pilosum, c. 0.55 cm longum.

Central Seran: Spring mountains of the Makina, 1000–1100 m, forest, epiphytical (L. RUTTEN n.2236, 18 May 1919; “flowers transparently white”).

In the shape of the lip this resembles *E. collina* SCHLTR. from New Guinea, but is a bigger plant with larger glabrous leaves, lanceolate acute glabrous petals, and the inflorescence much less hairy.

Description from herbarium.

Eria (sect. *Trichotosia*) **malleimentum** J. J. S. n. sp.

Caules validissimi, dense adpresse rufo-hirsuti, partes adsunt ad 45 cm longae, internodiis 3—4 cm longis. *Folia* patentia, lanceolata, basi semitorta, apice unilateraliter acuminata, obtusa, supra initio parce malpighiaceo-pilosa, deinde subglabrescentia, subtus densius pilosa, densius ciliata, costa media dorso prominente, sicco rigide coriacea, c. 16—20 cm longa, 4.2—5.5 cm lata, superiora decrescentia; vaginae tubulosae, internodia superantes, dense patentissime hirsutae. *Inflorescentiae* axillares, 2 vaginas perforantes, foliis multo breviores, brevissime pedunculatae, omnino dense patentissime rufo-hirsutae, c. 10—15 florum, 5—8 cm longae, rachide flexuosa. *Bractee* reflexae, valde concavae, suborbiculares, triangulo-acuminatae, obtusae, dorso margineque longe pilosae, ciliis apicem versus decrescentibus, ad c. 0.95 cm longae, 0.7 cm latae. *Flores* macerati c. 1.2 cm longi, sepalis carnosulis dorso longe erecto-patenter rufo-hirsutis. *Sepalum dorsale* sublineare, compressum conico-apiculatum, anguste obtusum, c. 1.2 cm longum, 0.26 cm latum. *Sepala lateralalia* lacinia mediocri antice dilatata concava ad pedem gynostemii decurrentia, mentum mediocre cum ovario angulum acutum faciens medio fere subrectangule incurvum obtusum parte incurva dorso canaliculatum c. 0.5 cm longum formantia, oblique oblonga, subfalcata, apice contracto carinata, carina triangulo-apiculata, concava, 7nervia, c. 1 cm, margine antico 1.2 cm longa, basi 0.8 cm, supra basin 0.5 cm lata. *Petala* oblique linearia, falcata, obtusa, concava, longe laxaque ciliata, 3nervia, c. 1 cm longa, 0.2 cm lata. *Labellum* apici pedis gynostemii incurvo insertum, supra basin pedi parallelum incurvum, deinde abrupte recurvum et gynostemio parallelum porrectum, eo basi valde sigmoideum, spathulatum, vix trilobum, concavum, minute papillosum, costis 3 in mesochyllo, costis exterioribus breviusculis crassiusculis glabris basin lobi intermedius longe non attingentibus, costa mediana bene longiore puberula supra basin lobi intermedius terminante, fere in medio mesochyllo evanescente, inexplanatum fere 1.1 cm, explanatum 1.37 cm longum, ungue lineari-oblongo, basi paulo dilatato, intus basi excepta puberulo, c. 0.475 cm longo, 0.15 cm basi 0.2 cm lato, mesochyllo obovato irregulariter marginato, puberulo, c. 0.5 cm longo, 0.4 cm lato, lobis lateralibus basi latissimis, abbreviatis, leviter rotundatis, lobo intermedio abrupte dilatato, transverse oblongo-obreniformi, crenulato, c. 0.34 cm longo, 0.7 cm lato. *Gynostemium* satis longum, curvum, superne paulo incrassatum, dorso convexum, glabrum, c. 0.575 cm longum, clinandrio alte excavato, transverse ovali, apice truncato, filamento dentiformi. *Anthera* cucullata, transverse subquadrangula, connectivo leviter conico-incrassato. *Stigma* transverse subovale. *Pes gynostemii* cum ovario angulum acutum, cum gynostemio

angulum obtusum faciens, $\frac{2}{5}$ partibus superioribus rectangule incurvis, linearis, apice leviter dilatatus, canaliculatus, inexplanatus c. 0.54 cm longus. *Ovarium* sessile, breve, crassum, dense longe subadpresse subtus patenter hirsutum, c. 0.675 cm longum.

West Seran: Between Loemoli and Lohia Tala, 500–800 m, epiphytical in forest (L. RUTTEN n.1573, 24 August 1918; "flowers yellowish white").

Allied to *E. idonantha* SCHLTR., *E. ediensis* J.J.S. and *E. latifrons* J.J.S., all from New Guinea, by the shape of the column foot incurved at the apex, but for the rest very different.

Description from herbarium.

MICROSTYLIS NUTT.

Microstylis (sect. Pseudoliparis) **Zippelii** J.J.S. in Bull. Dép. Agric. Ind. Néerl. XXXIX (1910), 17; SCHLTR. Orch. D. N. Guinea (1911) 121; Fig. Atl. t. XLVIII, Nr. 163.—*M. moluccana* J.J.S. var. *sagittata* J.J.S. in Nova Guinea VIII (1909), 32, t. X, 32.—*M. platycheila* KRZL. (nec. RCHB. F.) in SCHUM. et. LAUT. Fl.D.Schutzgeb.Südsee(1900) 242.—*M. moluccana* SCHLTR. (nec. J.J.S.) in Nachtr.Fl.D.Schutzgeb.Südsee(1905), 100.—*Malaxis moluccana* A. et S. var. *sagittata* A. et S. Orch.VI(1920), 73.

North Seran: Wahai, Batoe Kapiran, 0 m, forest (L. RUTTEN n.752, leg. KORNASI 9 January 1918; "flowers yellow, lip black").

The specimens agree especially with ZIPPEL's material.

Though the width of leaves is rather variable I do not think it desirable at the moment to distinguish more species.

Microstylis (sect. Hololobos) **crenatiloba** J.J.S. n.sp.

Caules approximati, plus minusve elongati, c. 5–8 cm longi, 3–4-folii, inferne nonnullis vaginis donati. *Folia* oblique ovata, longius acuminata, acuta, basi obliqua, crispula, nervis majoribus c. 7 subtus prominentibus, c. 9–11 cm longa, 3.8–4.6 cm lata; petiolus late canaliculatus, cum vagina 1.5–2.2 cm longus. *Inflorescentia* laxe multiflora, pedunculo angustissime alato, c. 17 cm longo, rachide angustissime alata, 10–25 cm longa. *Bractee* reflexae, lineari-subulatae, concavae, 1nerviae, ad c. 0.5–0.9 cm longae, superiores minores. *Flores* macerati c. 0.7 cm longi. *Sepalum dorsale* deorsum spectans, apice recurvum, oblongum, apice rotundatum, convexum, 3nervium, c. 0.37 cm longum, 0.18 cm latum. *Sepala lateralalia* reflexa, apice recurva, oblique late ovalia ad ovata, oblique rotundata ad obtusa, convexa, 3nervia, c. 0.33 cm longa, 0.2–0.225 cm lata. *Petala* divergentia, oblique sublinearia vel basi bene angustata, apice oblique truncata vel late retusa, convexa, 1nervia, c. 0.35–0.375 cm longa, 0.1 cm lata. *Labellum* auriculatum, 3lobum, fovea longitudinali, lineari, ad basin lobi intermedi terminante, costulis in basin lobi intermedi decurrentibus ante foveam furcatis limitata, lamella transversa gynostemio adpressa ad basin, explanatum c. 0.4 cm, cum auriculis 0.6 cm longum, 0.46 cm latum, lobis lateralibus late triangulis, brevissime acuminatis, obtusis acutisve, margine antico truncatis, lobo intermedio angulis acutis a lobis

lateralibus sejuncto, ambitu suborbiculari, bifido, basi lato, c. 0.2 cm longo, 0.25 cm lato, lobulis late triangulis falcatis apice tegentibus margine exteriori rotundatis basi excepta crenulatis, auriculis divergentibus, late oblique triangulis, falcatis, obtusis acutisve, margine interiori bene 0.2 cm longis. *Gynostemium* brevissimum, c. 0.1 cm longum, auriculis divergentibus, oblongus, obtusis. *Anthera* cucullata, subsexangulato-reniformis, apice truncata, fere 0.05 cm lata. *Ovarium* pedicellatum, 6costatum, c. 1 cm longum.

Central Seran: South of Kaniki, 600—1000 m, forest (L. RUTTEN n.1382, leg. KORNASI 22 June 1918; "flowers white, lip yellow").

Among the allied species this is well characterized by the crenate midlobe of the lip.

Description from herbarium.

Microstylis (sect. *Hololobos*) **angustifovea** J. J. S. n. sp.

Caules breves, c. 6—7 cm longi, 6—9folii. *Folia* oblique oblona ad elliptica vel plus minusve ovata, breviter acuminata, acuta, basi valde obliqua, crispula, nervis 5—7 subtus prominentibus, sicco membranacea, c. 7—11 cm longa, 2.6—5 cm lata; petiolus late canaliculatus, cum vagina tubulosa c. 1.2—3.5 cm longus. *Inflorescentia* multiflora, diu flores gignens, pedunculo alato, c. 6—8 cm longo, rachide alata, 17 cm superante. *Bractae* reflexae, incurvulae, lineari-subulatae, concavae, 1nerviae, ad 0.7 cm longae, superiores minores. *Flores* macerati c. 0.575 cm longi. *Sepalum dorsale* deorsum spectans, oblongum, obtusum, convexum, 3nervium, c. 0.4 cm longum, 0.15 cm latum. *Sepala lateralalia* divergentia, apice recurva, oblique subovalia, subfalcata, apice rotundata, convexa, 5nervia, c. 0.375 cm longa, 0.225 cm lata. *Petala* decurva, oblique sublinearia, superne paululum dilatata, obtusa, convexa, 1nervia, c. 0.4 cm longa, 0.08 cm lata. *Labellum* hippocrepidiforme, leviter 3lobum, in utraque foveae longitudinalis anguste linearis parte late sed leviter convexo-incrassatum, lamella parva transversa gynostemio adpressa ad basin, explanatum ambitu late rhombeum, c. 0.28 cm, cum auriculis 0.475 cm longum, 0.4 cm latum, lobis lateralibus late rotundatis, lobo intermedio a lobis lateralibus sinibus latis leviter rotundatis inconspicuis sejuncto, convexo, apice leviter incurvulo, subsemiorbiculari, bidentato cum dentibus brevibus triangulis obtusis contiguis, c. 0.06 cm longo, 0.2 cm lato, auriculis parallelis, oblique triangulis, obtusis vel subacutis, margine interiori c. 0.175—0.2 cm longis, basi fere 0.14 cm latis. *Gynostemium* brevissimum, latum, c. 0.1 cm longum, auriculis minusculis, oblongis, obtusis. *Anthera* cucullata, quinquangulato-reniformis, apice obtusa, c. 0.06 cm lata. *Stigma* transverse oblongum. *Ovarium* pedicellatum 6costatum, bene 0.4 cm longum.

Central Seran: Kampong Hatoeolo, 600 m, forest (L. RUTTEN n.1534, leg. KORNASI 4 July 1918; "flowers red, lip yellow").

In the shape of the lip this resembles *M. tjiwideiensis* J. J. S. from Java but in that species the midlobe of the lip is not bidentate.

Description from a single dried specimen.

Microstylis (sect. *Hololobos*) **triphylla** J. J. S. n. sp.

Rhizoma elongatum, repens, radicans, internodiis c. 2—2.2 cm longis, vaginis tubulosis internodiis bene brevioribus. *Caules* remoti, erecti, elongati, c. 6—14 cm longi, c. 2—3folii, internodiis longissimis ad c. 3.4—3.8 cm longis, superioribus brevioribus, inferioribus vaginam tubulosam acuminatam gerentibus. *Folia* patentia, oblique elliptica vel plus minusve ovata, acuminata, acuta, basi obliqua, nervis 5—7 subtus prominentibus, sicco membranacea, ad c. 6.5—11.5 cm longa, 3—4.4 cm lata, infimum minus; petiolus canaliculatus, cum vagina tubulosa c. 1.5—3 cm longus. *Inflorescentia* densius vel sublaxe multiflora, diu flores gignens, pedunculo angulato, c. 15—18.5 cm longo, nonnullis vaginulis bracteiformibus reflexis donato, rachide angulata, c. 15—18 cm vel plus longa. *Bractee* reflexae, lineari-subulatae, acutae, concavae, 1nerviae, ad c. 0.8 cm longae, basi 0.1 cm latae, superiores minores. *Flores* patentissimi, macerati c. 0.65—0.75 cm longi. *Sepalum dorsale* deorsum spectans plus minusve recurvulum, anguste oblongum, apice angustatum, anguste obtusum, valde convexum, 3nervium, c. 0.5—0.525 cm longum, 0.15 cm latum. *Sepala lateralialia* reflexa, marginibus recurvis valde convexa, oblique oblonga, apice oblique angustata, anguste obtusa, 3nervia, 0.4—0.45 cm longa, 0.16—0.2 cm lata. *Petala* reflexa, oblique linearia, marginibus valde recurvis subtubulosa, apice inaequaliter obtusa, latere longiore truncata, 1nervia, c. 0.4—0.45 cm longa, basi 0.05—0.07 cm, superne 0.03—0.04 cm lata. *Labellum* hippocrepidiforme, plus minusve trilobum, valde concavum, marginibus latis recurvis convexis, fovea longitudinali, valde concava, dorso convexa, oblonga, antice vallo angulato convexo inferne marginibus tenuibus elevatis limitata, lamella transversa gynostemio adpressa ad basin, explanatum totum c. 0.5 cm, usque ad locum insertionis 0.3 cm longum, 0.4—0.45 cm latum, lobo intermedio plus minusve imposito, ovato vel plus minusve triangulo, apice breviter subobtusely bidentato, convexo, apice plus minusve incurvo, c. 0.08—0.1 cm longo, 0.1—0.12 cm lato, lobis lateralibus multo brevioribus obtusangulis vel interdum dente brevi instructis, auriculis remotis, plus minusve divergentibus, oblique triangulis, anguste obtusis, 0.25—0.28 cm longis. *Gynostemium* c. 0.125 cm longum, auriculis cum dorso gynostemii angulum obtusum facientibus, divergentibus, antheram superantibus, verticalibus, oblongis, truncatis. *Anthera* cucullata, suborbicularis, basi retusa, apice truncata, c. 0.05 cm lata. *Rostellum* membranaceum, auriculis multo brevius, convexum. *Ovarium* pedicellatum 6costatum, c. 0.475—0.6 cm longum.

Central Seran: Hatoemeten-pass, south of Manoesela, 1500—1700 m, limestone mountains, forest (L. RUTTEN n.603, leg. KORNASI 29 November 1917; "flowers yellow"). Between Woloe and Manoesela, 1500—2000 m, lime-stone mountains, forest (L. RUTTEN n.728, leg. KORNASI 14 December 1917; "flowers yellow"). Goenoeng Moerkele, 2000—2500 m, limestone, forest (L. RUTTEN n.1503, leg. KORNASI 1 July 1918; "flowers light green, lip white").

The nearest ally is perhaps *M. celebica* SCHLTR. from which it differs in the longer stems, less numerous and larger leaves, narrower sepals and the shape of the lip.

N. 1503 shows slight deviations but I have no doubt that it belongs here. Description from herbarium.

Microstylis (sect. *Crepidium*) **incurviforceps** J. J. S. n. sp.

Caules approximati, c. 5—6 cm longi, 3—4folii, inferne paucivaginati. *Folia* ovata ad lanceolato-ovata, sensim acutata vel subacuminata, acuta, basi oblique rotundata, nervis majoribus c. 5 subtus prominentibus curvatis, undulata, sicco membranacea, c. 3.2—7.5 cm longa, 1.75—3 cm lata; petiolus canaliculatus, cum vagina tubulosa c. 1.7—2.8 cm longus. *Inflorescentia* subaxe multiflora, pedunculo anguste alato, c. 10—17 cm longo, vaginulis 2—3 bracteiformibus donato, rachide anguste alata, 5 cm superante sed satis brevi. *Bractee* reflexae, lineari-triangularae, acutae, 1nerviae, ad c. 0.45 cm longae, 0.1 cm latae. *Flores* parvi, patentissimi, macerati c. 0.45 cm longi. *Sepalum dorsale* deorsum spectans, oblongum, obtusum, convexum, 1nervium, c. 0.3 cm longum, 0.13 cm latum. *Sepala lateralialia* divergentia, angulum obtusum facientia, apice recurva, oblique ovalia plus minusve ovalia, obtusa, convexa, 2nervia, c. 0.26 cm longa, 0.15 cm lata. *Petala* reflexa, oblique linearia, truncata vel leviter retusa, convexa, 1nervia, c. 0.28 cm longa, 0.05 cm lata. *Labellum* hippocrepidiforme, 3lobum, fovea conspicua, angulato-suborbiculari vel explanata triangulo-ovata, margine valido cincta, basi lamella transversa erecta gynostemio adpressa limitata, dorso valde convexa cum sulcis 2 longitudinalibus, canaliculaque alta cincta, explanatum ambitu rhombeum, totum c. 0.36 cm, usque ad locum insertionis 0.25 cm longum, 0.25 cm latum, lobo intermedio producto, magno, valde incurvo, parte inferiore valde convexo, ovato-triangulo, apice usque $\frac{1}{3}$ infra apicem in dentes 2 oblique triangulos falciculosos tegentes partito, c. 0.15 cm longo et paulo angustiore, lobis lateralibus multo brevioribus, bidentatis, dente interiore erecto-patente, ovato-triangulo, acute acuminato, dente exteriori patentissimo, cum dente interiore (explanato) angulum subrectum faciente, triangulo, obtusiusculo, auriculis oblique triangulis, falciculo-incurvulis, anguste obtusis, c. 0.12 cm longis. *Gynostemium* a dorso compressum, breve, cuneatum, fere 0.1 cm longum, auriculis divergentibus, oblongis, obtusis. *Ovarium* pedicellatum, 6costatum, c. 0.45—0.5 cm longum.

Central Seran: Maoti-pass, 1200—1300 m, forest (L. RUTTEN n.1979, 30 January 1919; "flowers yellow").

Allied to *M. producta* J. J. S. from New Guinea but a larger plant with smaller flowers, and differing also in the shape of the parts of the flowers.

Description from herbarium.

Microstylis (sect. *Crepidium*) **Loxia** J. J. S. n. sp.

Caulis ramosus, radicans, ramulis erectis, c. 7foliis. *Folia* patentia, oblique ovata, leviter breviterque triangulo-acuminata, obtusa vel brevissime

apiculato-acutata, basi valde obliqua, nervis majoribus c. 5 subtus prominentibus, sicco membranacea, c. 6.5—8 cm longa, 2.7—2.6 cm lata; petiolus late canaliculatus, cum vagina c. 1.6—1.7 cm longus. *Inflorescentia* densius multiflora, diu flores gignens, pedunculo anguste alato, c. 6 cm longo, rachide anguste alata, 22 cm superante, racemo angusto. *Bractee* reflexae, lineari-subulatae, acutae, concavae, 1nerviae, ad c. 0.5 cm longae, bene 0.1 cm latae. *Flores* parvi, macerati c. 0.47 cm longi. *Sepalum dorsale* deorsum spectans, oblongum, obtusum, convexum, 3nervium, c. 0.28 cm longum, 0.14 cm latum. *Sepala lateralalia* recurva, valde convexa, late oblique subovalia, subfalcata, obtusa, 3nervia, c. 0.25—0.26 cm longa, 0.17 cm lata. *Petala* patentia, angulum obtusum facientia, lineari-oblonga, obtusa, valde convexa, 1nervia, c. 0.25 cm longa, 0.08 cm lata. *Labellum* hippocrepidiforme, fovea longitudinali, lineari, margine paulo elevato limitata, lamella transversa erecta triangula obtusa gynostemio adpressa ad basin, explanatum totum c. 0.4 cm, usque ad locum insertionis 0.25 cm longum, 0.325 cm latum, lobo intermedio erecto, apice incurvo, marginibus inferne recurvo, explanato late ovato, basi lato, apice usque $\frac{1}{3}$ infra apicem in dentes 2 falcato-triangulos incurvos anguste obtusos tegentes partito, 0.12 cm longo, 0.14 cm lato, lobis lateralibus bipartitis, dente interiore patente cum lobo medio et dente exteriori angulos acutos faciente, elongato, anguste subulato, falcatulo-incurvulo, lobo medio paulo brevior, fere 0.1 cm longo, dente exteriori patentissimo, oblique triangulo, obtuso vel subacuto, sinu plus minusve rotundato a basi auricularum sejuncto, dentibus interioribus brevior, auriculis remotis, parallelis, oblique triangulis, anguste obtusis, c. 0.15 cm longis, basi fere 0.1 cm latis. *Gynostemium* brevissimum, latum, apicem versus dilatatum, obtusangule incurvum, c. 0.08 cm longum, fere 0.1 cm latum, auriculis divergentibus oblique truncatis. *Anthera* cucullata, ambitu quinquangularis, obtusa basi bilobula, c. 0.5 cm lata. *Ovarium* pedicellatum 6angulatum, c. 0.225 cm longum.

North Seran: Above Pasahari, 0—100 m, forest (L. RUTTEN n.171, 23 September 1917; "flowers yellow").

Near *M. leucodon* SCHLTR. from New Guinea but the flowers are smaller and differently coloured with much shorter pedicels, the auricles of the lip are shorter, the midlobe longer. In the structure of the flowers it much resembles also *M. quadridentata* AMES from the Philippines but it has much broader leaves, larger differently coloured flowers with a more deeply cleft midlobe.

Description from a dried specimen.

Microstylis (sect. *Crepidium*) **crassilabris** J. J. S. n. sp.

Caulis tenuiusculus, radicans, dense multifolius, c. 7.5—15 cm longus. *Folia* c. 9, oblique oblongo, elliptica, subfalcata, obtusa, minute apiculata, basi valde obliqua in petiolum contracta, undulata, nervis 3 supra sulcatis subtus carinatis, supra inter nervos convexa, tenuia, c. 4.5—5 cm longa, 1.85—2.3 cm lata; petiolus canaliculatus, cum vagina brevi c. 1.5 cm longus. *Inflorescentia*

laxius multiflora, pedunculo alato-angulato, c. 4—6 cm longo, vaginula reflexa bracteiformi donato, rachide alato-angulata, 5.5 cm superante. *Bracteaereflexae*, subulatae, acutae, concavae, 1nerviae, usque ad 0.5 cm longae. *Flores* parvi, patentissimi, bene 0.3 cm lati, 0.4 cm longi, sepalis petalisque semireflexis. *Sepalum dorsale* deorsum spectans, valde convexum, oblongo-ovale, obtusum, 3nervium, c. 0.23 cm longum, 0.14 cm latum. *Sepala lateralialia* reflexa, oblique ovato-ovalia, obtusissima, valde convexa, 3nervia, c. 0.225 cm longa, 0.15 cm lata. *Petala* oblique late linearia, obtusa, leviter retusa, valde convexa, 1nervia, c. 0.225 cm longa, 0.06 cm lata. *Labellum* hippocrepidiforme, latum, fovea longitudinali, oblonga, inferne basique marginibus angustis elevatis limitata, dorso convexa, superne lobo medio dentibusque exceptis late transverse convexo-carnoso-incrassatum, parte incrassata nonnullis sulcis longitudinalibus curvulis convexo-costulata, explanatum totum c. 0.375 cm, usque ad locum insertionis 0.23 cm longum, 0.34 cm latum, lobo medio porrecto, tenui, cum incrassatione angulum obtusum faciente, ambitu semiovali, bipartito, c. 0.075 cm longo, 0.12 cm lato, laciniis parallelis sinu lineari sejunctis oblique triangulis acutis, dentibus 2 multo brevioribus oblique triangulis acutis extrorsum curvulis decrescentibusque et lobulo brevi rotundato utrinque, auriculis bene remotis, divergentibus, oblique triangulis, obtusis, convexis, c. 0.15 cm longis, 0.13 cm latis. *Gynostemium* inclinatum, cum ovario angulum obtusum faciens, a dorso compressum, ambitu quadrangulum, c. 0.125 cm longum, clinandrio cum gynostemii parte inferiore angulum obtusum faciente, auriculis porrectis, verticalibus, rotundato-obtusis. *Anthera* plano-cucullata, transversa, reniformis, obtusissima, c. 0.05 cm lata. *Ovarium* pedicellatum 6costatum, bene 0.4 cm longum.

North Seran: Wai Koea, c. 50 m, terrestrial in forest (L. RUTTEN n.41, 26 August 1917; "vern. name *lasewo*; flowers red").

Though the colour of the leaves has not been noted this belongs evidently to the group of *M. oculata* RCHB. F., *M. fasciata* SCHLTR., *M. obovata* J.J.S. etc. The very conspicuous thickening of the lip is remarkable.

Description from herbarium and materials preserved in alcohol.

***Microstylis* (sect. *Crepidium*) *seranica* J.J.S. n.sp.**

Caulis erectus, brevis, c. 4—5 cm longus, 5—6folius, parte inferiore vaginulis superne accrescentibus tectus. *Folia* late oblique ovata ad elliptico-ovata, leviter triangulo-acuminata, acuta, plerumque apiculata, basi valde obliqua, nervis majoribus c. 6 curvatis subtus prominentibus, sicco membranacea maxima c. 10—12 cm longa, 4—6 cm lata; petiolus late canaliculatus, cum vagina tubulosa 2.5—5 cm longus. *Inflorescentia* laxe multiflora, pedunculo alato, c. 14—18 cm longo, interdum vaginula bracteiformi donato, rachide alata, c. 10—31 cm longa. *Bracteaereflexae*, lanceolato-triangulae, acutae, ad c. 0.6 cm longae, superiores decrescentes. *Flores* majusculi, macerati c. 1 cm longi, 0.73 cm lati. *Sepalum dorsale* deorsum spectans, marginibus valde revolutis anguste tubulosum, explanatum verisimiliter lineare, obtusum, c. 0.6 cm

longum. *Sepala lateral*ia subpatentissima, angulum obtusum facientia, marginibus oblique subtubuloso-revolutis, explanata oblique oblonga, falcata, obtusa, 3nervia, c. 0.475 cm longa, 0.17 cm lata. *Petala* deflexa, marginibus revolutis, linearia, 1nervia, c. 0.5 cm longa, 0.05 cm lata. *Labellum* hippocrepidiforme, fovea dimidium longitudinis labelli non aequante, antice incrassatione transversa limitata, lamella transversa triangula gynostemio adpressa ad basin, totum c. 0.9 cm, usque ad locum insertionis 0.425 cm longum, 0.57 cm latum, lobo intermedio parvo, alte in lacinias 2 subovato-triangularas acuminatas interdum dentiferas partito, c. 0.1 cm longo, 0.12 cm lato, dentibus 4–5 conspicuis extrorsum decrescentibus lineari-subulatis obliquis utrinque, dentibus interioribus falcatulis lobum intermedium superantibus ad 0.15 cm longis, dentibus extremis brevissimis late triangularibus obtusis, auriculis conspicuis, parallelis, oblique triangularibus, acutiusculis, c. 0.45 cm longis, 0.23 cm latis. *Gynostemium* breve, a dorso compressum, apice dilatatum, c. 0.16 cm longum, auriculis divergentibus. *Anthera* transverse ovali-subreniformis, apice minute bidenticulata (normaliter?), fere 0.1 cm lata. *Ovarium* pedicellatum c. 0.65 cm longum.

North Seran: Near Seleman, 0–100 m, coast vegetation, limestone (L. RUTTEN n.2029, 4 February 1919; “flowers green with a reddish brown central blotch”).

This is indeed very similar to *M. klabatensis* SCHLTR. from Selebes, from which it may be distinguished by the much shorter pedicel and the midlobe of the lip being shorter than the adjacent teeth.

The material was not in good condition so that the description wants revision in some respects.

Description from herbarium.

OBERONIA LNDL.

Oberonia (sect. Labidous) **seranica** J. J. S. n. sp.

Caules approximati, elongati, valde serpentine, compressi, c. 10–24 cm longi, cum foliis ad c. 2.3–3.7 cm lati, internodiis c. 1.15–2 cm longis. *Folia* inarticulata, erecto-patentia, caulis basin apicemque versus decrescentia, subincurvula, margine superiore recta vel subrecta, margine inferiore curvata, oblongo-triangulara, acuta, apiculata, sensim in vaginam abientia, et dorso cum ea angulum rotundatum facientia, maxima margine superiore c. 2.8–4 cm, dorso cum vagina 3.8–5.7 cm longa, 0.75–1.3 cm lata, apice libero 1.6–2.5 cm longo, 0.65–0.95 cm lato, sicco tenuia. *Inflorescentia* breviuscula, dense vel subdense multiflora, pedunculo c. 1.2–1.4 cm longo, rachide tereti, multicostata, glabra, c. 3.2–7 cm longa, cum floribus cylindrica c. 0.6–0.625 cm diam. *Bractee* adpressae, oblongae, superne angustatae et breviter paucilacinulatae, concavae, c. 0.1 cm longae, 0.05 cm latae. *Flores* patentissimi, glabri, c. 0.32 cm longi, sepalis petalisque revolutis. *Sepalum dorsale* oblongum, obtusum, c. 0.1 cm longum, bene 0.05 cm latum. *Sepala lateral*ia late oblique ovata, obtusa, 1nervia, c. 0.1 cm longa et lata. *Petala*

sublinearia, apicem versus paululum angustata, obtusa, c. 0.125 cm longa, 0.03 cm lata. *Labellum* satis conspicuum, 3lobum, 3nervium, nervo intermedio brevi, explanatum totum c. 0.3 cm, usque ad locum insertionis 0.225 cm longum; lobi laterales in utraque gynostemii parte erecti, auriculiformes, longitudinaliter oblique reverse conduplicata, antice carinata, gynostemium bene superantes, explanati, oblique oblongi, plus minusve quadranguli obtusi, margine exteriori saepe plus minusve irregulariter crenati et parce papilloso, c. 0.075 cm longi; lobus intermedius major, porrectus, cum lobis lateralibus angulos obtusos faciens, ovarium subcontinuus, concavus, subtus convexus, oblongus, basi vix contractus, apice bifidus cum laciniis ambitu triangulis, margine exteriori dense lacinulatus, laciniis patentibus tenuissimis irregularibus apicem versus accrescentibus, c. 0.2 cm longus, 0.1 cm latus, laciniis apicalibus fere 0.1 cm longis. *Gynostemium* brevissimum, cum ovario angulum obtusum faciens, clinandrio concavo, quinquangulari. *Anthera* cucullata, quinquangularis, basi leviter retusa, apice paululum producta, c. 0.025 cm lata. *Pollinia* 4, in corpuscula 2 obovato-pyriformia unita. *Rostellum* latum, truncatum. *Stigma* transversum. *Ovarium* pedicellatum glabrum, c. 0.18 cm longum.

North-West Seran: Wai Kapoetih, 0–100 m, epiphytcal in forest, bank vegetation (L. RUTTEN n.1747, 6 October 1918; "flowers brown").

Central Seran: Hoalo pass, 1600 m, terrestrial (Il. Freiburger Molukken Expedition, E. STRESEMANN n.42, May-August 1911).

It would certainly be a remarkable fact if this plant proved to occur both nearly at sea-level and at 1600 m above the sea, and also that it should be both an epiphytcal and a terrestrial growth. I suppose, however, that the labels or the annotations of STRESEMANN have been confounded.

Description from herbarium.

Oberonia (sect. *Platystreptus*) **monstruosa** LNDL. Gen. et spec. Orch. (1830), 17; etc.

var. **seranica** J. J. S. n. var.

Differt a forma typica labello longius angustato et apice altius bidentato.

West Seran: North of Melilia, 550–750 m, forest (L. RUTTEN n.1625, 4 August 1918).

In habit the variety does not differ from the Javanese specimens, in the flowers it shows slight differences particularly in the shape of the lip. The only raceme at hand, however, is in young fruit. When better materials are available it may prove necessary to raise it to specific rank. Dr. SCHLECHTER has described a number of similar forms from New Guinea.

Oberonia (sect. *Adenorhachis*) **enoensis** J. J. S. in Bull. Jard. Bot. Buit. 3e sér., IX (1928), 454.

North Seran: Pasir Poetih, Wahai, 0 m, beach, on *Calophyllum* (L. RUTTEN n.204, leg. KORNASI 5 October 1917).

The sole small specimen at hand agrees well with the poor material which was collected in Boeroe.

Oberonia (sect. *Otoglossum*) **murkelensis** J. J. S. n. sp.

Caules elongati, vix serpentine, c. 15 cm longi, dense foliati. *Folia* c. 15, erecto-patentia, falcato-incurvula, inarticulata, oblique lanceolato-triangularia, acuta, apicem versus minute crenulata, supra ad basin fissa et membranaceo-marginata, supra c. 4 cm, dorso (cum vagina) 4.5 cm longa, supra vaginam 0.775 cm lata; vaginae tubulosae, lateraliter compressae, antice membranaceae, basi valde obliquae. *Inflorescentia* dense multiflora, apice laxa, pedunculo c. 1.3 cm longo, nonnullis vaginulis donato, rachide multialata, alis intergerrimis, glabra, c. 9.25 cm longa. *Bractee* oblongo-ovatae vel subrhombeae, apiculatae, ciliolato-erosulae, leviter concavae, ad c. 0.3 cm longae, 0.13 cm latae. *Flores* (fecundati) patentissimi, subincurvuli, glabri, in verticillos spurios c. 7meros dispositi. *Sepalum dorsale* subovato-triangularium, acutum, convexum, c. 0.1 cm longum, fere aequilatum. *Sepala lateralalia* oblique ovato-triangularia, anguste obtusa, convexa, 1nervia, bene 0.1 cm longa, 0.08 cm lata. *Petala* anguste oblonga, apicem versus angustata, obtusa, c. 0.1 cm longa, 0.04 cm lata. *Labellum* 3lobum, concavum, ambitu quadrangulum, medio constrictum, basi excavatum, explanatum totum c. 0.14 cm longum, ad lobos laterales 0.13 cm, ad constrictionem 0.075 cm latum; lobi laterales auriculiformes, reversi, divergentes, gynostemium amplexantes, trapezoides, obtusi; lobus intermedius angulis obtusis a lobis lateralibus sejunctus, transversus, apice brevissime 2lobulus cum dente abbreviato obtuse triangulo aequilongo interposito, lobulis exterioribus irregulariter angulatis serratisque, c. 0.06 cm longus, 0.12 cm latus. *Capsula* immatura erosulo-sexalata.

Central Seran: Goenoeng Moerkele, 1000—1900 m, forest (L. RUTTEN n.1457, 30 June 1918; "flowers yellow").

Only a single stem the flowers of which had already passed into fruit has been collected. It differs from *O. subanajamensis* J. J. S. from Sumatra, which it much resembles, in the shape of the lip and the glabrous rachis.

Description from herbarium.

LIPARIS L. C. RICH.

Liparis (sect. *Blepharoglossum*) **maotiensis** J. J. S. n. sp.

Pseudobulbi approximati, elongati, sicco lineares, c. 10—11 cm longi, 1folii, initio vaginis imbricantibus conduplicatis acutis superne accrescentibus ad c. 8—9 cm longis inclusis. *Folium* articulatum, lanceolatum, sensim acuminatum, basin versus sensim angustatum conduplicatumque, in utraque parte costae mediae subtus prominentis nervis majoribus 2 sicco supra subtusque prominentibus, sicco papyraceum, c. 27—32 cm longum, 3.5—28 cm latum. *Inflorescentia* ex apice pseudobulborum maturorum, folium subaequans, laxa multiflora, spatha compressa, acute acuminata, c. 3.5—4 cm longa, pedunculo c. 8—8.5 cm longo, rachide 19—21 cm longa. *Bractee* lanceolato-triangularae, acutae, concavae, 1nerviae, ad c. 1.25 cm longae, bene

0.3 cm latae, superiores decrescentes. *Flores* majusculi, patentissimi, macerati c. 1.4 cm longi. *Sepalum dorsale* erectum, apice recurvum, valde convexum, lanceolato-triangulum, apicem versus sensim angustatum, anguste obtusum, basi vix dilatatum, 3nervium, bene 0.8 cm longum, basi 0.24 cm latum. *Sepala lateral*ia sub labello abscondita, apice oblique revoluta, valde convexa, oblique lanceolata, obtusa, breviter apiculata, 3nervia, bene 0.8 cm longa, 0.23 cm lata. *Petala* reflexa, oblique linearia, obtusa, interdum retusa, basi paululum dilatata, 1nervia, c. 0.87 cm longa, basi 0.1 cm medio 0.07 cm lata. *Labellum* conspicuum, supra basin contractam gynostemio breviter adnatam recurvum, valde convexum, apice recurvum, medio canaliculatum, 5nervium, nervis 3 medianis valde approximatis, nervis exterioribus bene ramosis, callo erecto transverso carnosio rotundato-subsexangulato postice convexo antice basi excavato et in costulas 2 longitudinales breves inconspicuas producto ad basin supra locum insertionis, explanatum ex ungue brevi obverse aequilateraliter trapeziformi postice brevissime obtuse biauriculato c. 0.18 cm longo apice bene 0.3 cm lato cuneato-obreniforme, apice rotundato-bilobum cum lobulo parvo triangulo obtuso in sinu, basi excepta duplicato-crenatum serrulatumque, totum bene 0.9 cm longum, 1 cm latum. *Gynostemium* apice valde hamato-incurvum, basi incrassata valde dilatatum, ovario multo latius, subtus canaliculatum, in utraque stigmatis parte alato-dilatatum, inexpandum 0.35 cm longum, clinandrio concavo transverse ovali. *Anthera* cucullata, reniformis, apice obtusissima, fere 0.1 lata. *Ovarium* pedicellatum 6sulcatum, bene 1 cm longum.

Central Seran: Maoti pass, south-side, 1200—1300 m, epiphytical in forest (L. RUTTEN n.1978, 30 January 1919; "flowers dirty brownish yellow"). Hatoemetan pass, south of Manoesela, 500—600 m, limestone mountains, in forest (L. RUTTEN n.618, leg. KORNASI 29 October 1917; "flowers yellow").

This belongs to the group of *L. latifolia* LNDL. etc. The nearest ally is perhaps *L. tunensis* J.J.S. from Ambon from which it differs *i.a.* in the longer and narrower leaves, differently coloured flowers, a much more widened lip, and the shorter pedicel. I am not sure that the column in the fresh flower is as much bent as the soaked flower shows it.

N. 618 differs in the rather larger flowers (sepals and petals 1.15 cm long) and the less distinctly bilobed lip.

Description from herbarium.

Liparis (Genyichilus) **refracta** J.J.S. n.sp.

Rhizoma abbreviatum, radicibus villosis. *Pseudobulbi* approximati, elongati, sicco tenues, c. 5.5—12.5 cm longi, 1folii, nonnullis vaginis superne accrescentibus acutis ad c. 3.5—10 cm longis initio ad basin. *Folium* inarticulatum, anguste lanceolatum, acutatum, ut videtur acutum, basin versus sensim angustatum conduplicatumque, nervis majoribus c. 7 sicco dorso prominentibus pluribusque tenuioribus, costa media carinata, sicco papyraceum, c. 10—26 cm longum, 1.5—2.5 cm latum. *Inflorescentia* laxe pluri-

multiflora, spatha c. 1.5–3.75 cm longa, pedunculo c. 4–9 cm longo, rachide sicco plus minusve quaquaverse flexuosa, angulata, 9–26 cm longa. *Bractee* lanceolato-triangularae, acutae, c. 0.7–0.9 cm longae. *Flores* macerati c. 0.95 cm longi. *Sepalum dorsale* cum gynostemio angulum acutum faciens, valde recurvum, anguste oblongum, obtusum, valde convexum, 3nervium, c. 0.675 cm longum, 0.24 cm latum. *Sepala lateral*ia recurva, revoluta, oblique oblonga, apice breviter acutata, obtusa, valde convexa, 3nervia, costa media dorso incrassata, c. 0.6 cm longa, 0.25 cm lata. *Petala* reflexa vel plus minusve revoluta, oblique linearia, acuta, convexa, 1nervia, fere 0.6 cm longa, 0.075 cm lata. *Labellum* basi gynostemio brevissime adnatum, parallelum gynostemio erectum, in fere $\frac{1}{3}$ supra basin acutangule refractum, subtrilobum, parte erecta subquadrata, marginibus patentibus concava, subtus convexa, carnososa, callo magno quadrangulo antice paululum dilatato convexo antice excavatione brevi alta praedito et ante flexum in costulas 2 brevissimas terminante donata, lobis lateralibus erectis, carnosus, rotundatis, intus valde convexo-incrassatis, extus concavis, canalicula alta sejunctis, lobo medio multo majore, deflexo, oblongo-triangulo, a medio fere apicem versus angustato, obtuso, convexo, inexplanatum c. 0.46 cm longum, 0.2 cm latum, explanatum oblongum, c. 0.5 cm longum, 0.225 cm latum, lobo intermedio 0.3 cm longo, 0.15 cm lato. *Gynostemium* elongatum, curvulum, marginibus basin versus incrassatis basi ovario latius, parte inferiore subtus canalicula longitudinali marginibus convexis limitata instructum, parte superiore marginibus alatis subtus canaliculatum, dorso convexum, apice truncatum, c. 0.5 cm longum, clinandrio concavo, quadrangulo. *Anthera* cucullata, transverse quadrangula, apice in appendicem aequilatam transverse quadrangulam producta, c. 0.075 cm lata, bene 0.1 cm longa. *Ovarium* 6sulcatum, c. 0.15 cm longum; pedicellus 0.55 cm longus. *Capsula* nutans, plus minusve fusiformis, apice crassa, basi acuta, 6costata, c. 1–1.3 cm longa; pedicellus patens, 0.8–0.9 cm longus.

Central Seran: Kampoeng Hatoeolo, 600 m, forest (L. RUTTEN n. 1529, 4 July 1918; "flowers light green").

A member of the Papuan section *Genychilus*, allied with *L. genychila* SCHLTR. from which it is readily distinguished by the narrower leaves, smaller flowers, narrower petals and the lip being narrowed towards the apex. Moreover the colour of the flowers seems to be different.

Description from herbarium.

***Liparis* (sect. *Distichon*) *murkelensis* J. J. S. n. sp.**

Rhizoma repens, elongatum, radicans, initio vaginis alternatim bifariis tubulosis conduplicatisque acuminatis pseudobulbum versus accrescentibus ad c. 4–5 cm longis tectum. *Pseudobulbi* c. 2.5–5 cm dissiti, compressi, oblique ovati vel orbiculari-ovati, apice late truncati, sectione transversa anguste elliptici, c. 1.2–1.45 cm longi, 1.2–1.1 cm lati, 1folii. *Folium* articulatum, erectum, lineare, in utraque canaliculae parte valde convexum, apice breviter

acuminatum, acutum, basi conduplicatum, dorso carinatum, c. 15.5—21 cm longum, 1.3 cm latum; vagina conduplicata, c. 2.6 cm longa. *Inflorescentia* erecta, dense multiflora, sensim flores gignens, pedunculo ensiformi, c. 7.5—12 cm longo, medio 0.14—0.16 cm, apice 0.3 cm lato, rachide nutante, flexuosa, quadrangula, c. 2.75—4.5 cm longa, cum bracteis 0.85—0.9 cm lata, internodiis c. 0.15—0.2 cm longis, facie florem versus spectante excavatis acuteque marginatus. *Bractee* alternatim bifariae, subpatentissimae, conduplicatae, cymbiformes, dorso curvatae, valde carinatae, carina longe ultra apicem producta a latere visa obtusa, dorso 0.37—0.5 cm longae. *Flores* c. 0.7 cm longi, sepalis reflexis. *Sepalum dorsale* oblongum, obtusum, minute obtuse conico-apiculatum, convexum, 3nervium, c. 0.56 cm longum, 0.24 cm latum. *Sepala lateral*ia oblique ovata, obtusa, conico-apiculata, convexa, 3nervia, costa media dorso carinata, c. 0.53 cm longa, bene 0.3 cm lata. *Petala* patentissima, cum ovario angulum subrectum facientia, oblique spathulata, obtusa, convexa, 1nervia, c. 0.5 cm longa, basi 0.075 cm, superne 0.13 cm lata. *Labellum* basi gynostemio parallelum, eo breviter adnatum, in c. $\frac{1}{3}$ supra basin abrupte recurvum, flexu utrinque in formam plicae transversae inflatae supra valde convexae rotundato-gibbosae auctum, basi in lobulos 2 auriculiformes rotundatos reversos productum, 3nervium, callo conspicuo erecto gynostemio adpresso a dorso compresso ambitu rotundato-quadrangulo vel potius quinquangulati apice levissime rotundato-trilobulo antice medio minute perforato ad basin, callis 2 multo minoribus collateralibus conico-dentiformibus antepositis, epichyllo latiore, decurvo, marginibus inferne recurvo superne incurvo, apice recto, transverse subcuneato-ovali, utrinque rotundato, apice in lobulum brevem obtusum productum, minute papilloso, inexplanatum bene 0.3 cm longum, subexplanatum c. 0.36 cm longum, hypochyllo 0.24 cm, epichyllo 0.3 cm lato. *Gynostemium* vix curvulum, carnosum, a dorso compressum, utrinque conspicue carnosolato-dilatatum, basi truncata ovario multo latius, apice contractum, dorso obtusangulum, ala porrecta triangula acuta in utraque stigmatis parte, absque anthera c. 0.27 cm longum, 0.24 cm latum, clinandrio concavo, transverse ovali, apice truncato. *Stigma* transverse subrotundato-quadrangulum. *Ovarium* pedicellatum 6costatum, c. 1 cm longum.

Central Seran: Goenoeng Moerkele, 2000—2500 m, limestone, forest, abundant (L. RUTTEN n. 1483, leg. KORNASI 1 July 1918; "flowers red, lip yellow"; n. 1491; "flowers red").

A near ally of *L. togensis* J. J. S. from Boeroe but with much broader leaves and the lip with the epichylum broader than the hypochilium.

Description from herbarium and materials preserved in alcohol.

AGLOSSORHYNCHA SCHLTR.

Aglossorhyncha longicaulis J. J. S. n. sp.

Rhizoma ramosum, teres, radicans, initio vaginis mox fatiscientibus tectum, sensim in caules abiens. *Caules* elongati, ramosi, dependentes, apicibus incurvis, apice tantum foliati, compressi, sectione transversa elliptici,

60 cm superantes, ad 0.25—0.3 cm lati, internodiis c. 1.25 cm longis. *Folia* in ramulis c. 3—5, erecto-patentia, late linearia, versus apicem paulo angustata, infra apicem paulo contracto-constricta, alte rotundato-biloba, exapiculata, basi cuneata etorta, acute marginata, margine satis integerrima parte contracta vix repandula, costa media supra canaliculata subtus versus apicem prominula, carnosae, c. 4.2—4.8 cm longae, c. 0.45—0.7 cm infra apicem constrictae, 0.9—0.95 cm latae; vaginae tubulosae, internodia superantes, sectione transversa ellipticae, longitudinaliter prominenter nervosae et transverse rugulosae. *Inflorescentiae* terminales, sessiles, biflorae. *Bractee* erectae, plus minusve foliaceae, oblongae, apice lato conduplicato-cucullatae ad spathulatae, obtusae vel applicato-rotundato-bilobae, concavae, c. 0.9—1.5 cm longae, 0.4 ad fere 0.6 cm latae. *Flores* nutantes, c. 1.2 cm longi, sepalis plus minusve divergentibus apice recurvis. *Sepalum dorsale* oblongum, obtusum, breviter obtuse apiculatum, concavum, superne convexum, 3nervium, nervis exterioribus basi furcatis, bene 1.2 cm longum, bene 0.4 cm latum. *Sepala lateralialia* oblique oblonga, subacuta, conico-apiculata, concava, 3nervia, nervis exterioribus basi furcatis, costa media dorso prominente, c. 1.3 cm longa, 0.425—0.43 cm lata. *Petala* oblique ovato-lanceolata ad lanceolata, obtusiuscula, minute apiculata, leviter concava, 3nervia, nervis exterioribus basi furcatis, c. 1.2—1.25 cm longa, 0.35—0.4 cm lata. *Labellum* cum ovario angulum obtusum faciens, valde concavum, cymbiforme, praesertim inferne marginibus valde incurvis et fere contiguis, gynostemium includens, supra visum oblongum, obtusum cum apiculo obtuso incurvulo, simplex, 7nervium, nervis 2 exterioribus exceptis dorso sulcatis intus versus apicem prominentibus, costa media in margine apicali ad basin apiculi in callum convexum terminante, carnosum, inexplanatum fere 1.1 cm longum, 0.4 cm latum, explanatum late subovale, basi truncatum, apice breviter subacuta acuminatum, c. 1.15 cm longum, 0.76 cm latum. *Gynostemium* gracile, clavatum, supra basin incurvum, cum ovario angulum obtusum faciens, ceterum rectum, basin versus subteres, subtus subapplanatum, c. 0.825 cm longum, clinandrio anguste semilunato, margine alato-dilatato, ala trilobula, lobulo apicali lata truncata undulata minute denticulata lobulis lateralibus (auriculis) incurvis rotundatis vel obtusis leviter denticulatis. *Anthera* cucullata, supra visa ambitu sexangulata, apice lata rotundato-bilobula, connectivo conico-incrasato postice late canaliculato, c. 0.15 cm lata, 0.2 cm longa. *Rostellum* breve, latum, breviter rotundato-bilobulum, clinandrii apicem subaequans. *Stigma* obverse rotundato-triangulum, margine elevatum. *Ovarium* satis crassum, obtuse trigonum, angulis sulcatum, lateribus leviter obtusangule concavum, sparse furfuraceo-punctatum, fere 0.6 cm longum, cum pedicello brevi recurvo bene tenuiore c. 0.2 cm longo clavatum. *Capsula* immatura reliquiis floris coronata, subglobosa, 6alata, c. 0.85 cm longa.

Central Seran: Goenoeng Moerkele, 2000—2500 m, forest on limestone, abundant (L. RUTTEN n.1490, leg. KORNASI 1 July 1918; "flowers light green, lip white").

This is the first extra Papuan species of the genus. It is allied to *A. biflora* J. J. S. but differs *i. a.* in the longer and thinner stems, smaller leaves more distinctly constricted below the apex and smaller flowers.

Description from herbarium and materials preserved in alcohol.

GLOMERA BL.

Glomera (sect. Euglomera) **secunda** J. J. S. n.sp.

Caules elongati, ramosi, rigidi, hic illic radicem emittentes, inferne subteretes in sicco ad c. 0.3 cm crassi, superne leviter flexuosi, sectione transversa elliptici, c. 0.125—0.2 cm lati, c. 85 cm longi, ramulis patentibus, inferne vaginatis, superne foliatis, internodiis ad c. 2.75 cm longis, superioribus 1—2 cm longis. *Folia* sessilia, erecto-patentia, basi semitorta, linearia, apicem versus sensim angustata, apice valde obliqua, latere brevior acute dentiformi, latere longior obtuso, basi rotundata, supra sulcata, ecarinata, in sicco costa media subtus prominula, crassius coriacea, c. 5.25—7.25 cm longa, 0.6—0.725 cm lata; vaginae tubulosae, internodiis multo longiores, parte nuda transverse ruguloso-verruculosae, dente conspicuo adpresso verruculoso laminae opposito. *Inflorescentiae* sessiles, capituliformes, nutantes, secundae, dense multiflorae, rachide recurva, distincte elongata, c. 0.6—0.7 cm longa, cum floribus 1.6—2.2 cm longa, vaginula infima magna, suborbiculari, acuminata, valde concava, ad c. 1.6 cm longa, 1.5 cm lata. *Bractee* oblongo-ellipticae, leviter acuminatae, acutae, concavae, 3nerviae, membranaceae, ad c. 0.9 cm longae, 0.325 cm latae. *Flores* c. 0.8 cm longi, 0.525 cm lati, sepalis petalisque conniventibus plus minusve divergentibus. *Sepalum dorsale* ovali-subovatum, apice angustatum, anguste obtusum, concavum, apice recurvulo convexum, 3nervium, c. 0.6 cm longum, 0.35 cm latum. *Sepala lateral*ia margine antico $\frac{2}{5}$ partibus inferioribus connata, mentum reversum breve latum truncatum c. 0.15 cm longum 0.33 cm latum formantia, oblique subovata, obtusa vel subobtusa concava, c. 0.56 cm, usque ad apicem sacci 0.66 cm longa, 0.35 cm lata. *Petala* elliptica, obtusa, concava, 3nervia, c. 0.55 cm longa, fere 0.3 cm lata. *Labellum* basi gynostemio breviter adnatum, usque apicem ovarii 0.4 cm, parte libera 0.325 cm, cum calcari 0.475 cm longum; lamina porrecta, gynostemium subduplo superans, cum calcari angulum rotundato-obtusum faciens, basi leviter concava, superne subconvexa cum costula inconspicua longitudinali convexa, quadrangula, antice paululum dilatata, apice rotundata, basi in costulam transversam conspicuam incrassata, apice 0.225 cm lata; calcar reversum, ovario adpressum et multo brevius, subovale, rotundatum, antice convexum, postice fere 0.2 cm longum, 0.2 cm latum. *Gynostemium* breve, curvulum, dorso convexum, parte superiore bene dilatatum, c. 0.24 cm longum, clinandrio alte excavato, triangulo, lobulo postico late obtuse triangulo irregulariter marginato, auriculis oblique triangulis acutis margine antico recurvulis margine postico leviter irregularibus. *Anthera* cucullata, transverse ovali-obreniformis, obtusangule

retusa, lobulis rotundatis, anguste tenuiter marginata, basi conico-incrassata et postice longitudinaliter sulcata, c. 0.125 cm lata. *Rostellum* conspicuum, latum, auriculas aequans, obtusangule exciso-bilobulum. *Stigma* transversum margine inferiore valde producto rotundato concavo, cum rostello transverse cupuliforme. *Ovarium* sessile, crassiusculum, 6sulcatum, c. 0.3 cm longum.

Central Seran: Goenoeng Moerkele, 2000—2500 m, forest on limestone, abundant (L. RUTTEN n. 1487, leg. KORNASI 1 July 1918; "flowers white, lip yellow"). Source mountains of the Makina, 1000—1200 m, forest, epiphytical (L. RUTTEN n. 2251, 19—20 May 1919; "flowers white").

Near *G. subracemosa* J.J.S. from New Guinea but the stems are longer, the leaves narrower, the flowers smaller, the sack of the lip shorter, the column longer and the anther bilobed at the top.

Description from herbarium and materials preserved in alcohol.

Glomera (sect. Euglomera) **pumilio** J. J. S. n.sp

Pusilla. *Caules* approximati, simplices, c. 4—5 cm longi, basi vaginati, ceterum foliati, internodiis c. 0.2—0.3 cm longis. *Folia* parva, patentissima, ovata ad ovato-oblonga, apice oblique obtuse bilobula cum apiculo brevi crasso obtuso, basi utrinque rotundata, margine crenulata, angulato-concava, crasse carnosae, c. 0.7—0.925 cm longae, 0.4 cm latae; vaginae tubulosae, longitudinaliter prominenter nervosae, superne grossissime transverse verrucoso-rugosae. *Inflorescentia* terminalis, sessilis, brevissima, 4flora. *Bracteae* magnae, valde concavae, orbiculari-ovatae, apice breviter contractae interdum cucullatae obtusae, basi latissimae, dorso carinatae, 3—5nerviae, c. 0.65—0.75 cm longae, 0.57—0.9 cm latae. *Flores* in sectione mediocres. *Sepala lateralalia* marginibus anticis alte connata, ad pedem gynostemii brevem decurrentia, mentum conspicuum saccatum latum subtruncatum leviter retusum calcar amplectens formantia, 5nervia, tota c. 0.8 cm longa, parte libera oblique ovata, obtusa, apiculata, c. 0.4 cm longa, 0.3 cm lata. *Petala* oblique oblonga, obtusa, basi angustata, 3nervia, c. 0.725 cm longa, 0.2 cm lata. *Labellum* dimidio inferiore gynostemii et pedi gynostemii adnatum, calcaratum, usque ad apicem ovarii c. 0.28 cm, cum calcaribus 0.34 cm longum; lamina rotundato-angulata recurva, cum gynostemio utrinque sinum satis angustum rotundatum faciens, concava, basi obtusangule canaliculata, inexplanata subquinqangularis, obtusa, explanata suborbicularis, basi abrupte transverse incrassata, c. 0.225 cm longa, 0.2 cm lata, 7nervia; calcar basi (pedi gynostemii) ovario adpressum, deinde obtusangule incurvum et cum ovario angulum acutum faciens, ample oblongo-ovale, apice rotundato-truncatum, c. 0.2 cm longum, ovario brevius. *Gynostemium* breve, curvulum, dorso basi conspicue convexo cum ovario angulum obtusum faciens, absque anthera c. 0.2 cm longum, dimidio inferiore labello adnatum, clinandrio alte excavato, semilunato, pariete postico paulum producto, obtuso, auriculis triangulis acutis. *Rostellum* conspicuum, latum, late leviter rotundato-exciso-truncatum, supra convexum, subtus concavum. *Stigma* cum rostello cupuliforme, margine

inferiore valde dilatato incurvo rotundato. *Pes gynostemii* distinctus, brevis, c. 0.07 cm longus. *Ovarium* pedicellatum c. 0.4 cm longum.

Central Seran: Goenoeng Moerkele, 1900—2500 m, limestone, forest (L. RUTTEN n.1469, leg. KORNASI 1 July 1918; "flowers white").

Amongst the species of the section *Eugloma* the above is the smallest; in this respect it resembles a few species of the section *Glossorrhyncha*. The affinity is with *G. Dekockii* J. J. S. and *G. Hubrechtiana* J. J. S., which also possess a distinct column foot adnate to the labellum. The leaves are very short and thick and the sheaths very coarsely warty.

Description from a single dried specimen with the flowers somewhat defective.

Glomera (sect. *Glossorrhyncha*) **amboinensis** J. J. S. in Bull. Dép. Agric. Ind. Néerl. XV (1908). — *Glossorrhyncha amboinensis* RIDL. in Journ. Linn. Soc. XXVIII (1891), 341.

var. **seranica** J. J. S. n. var.

Rhizoma valde ramosum, radicibus tenuibus. *Caules* elongati, ramosi, teretes, nitidi, superne saepe leviter flexuosi, foliati, c. 34 cm longi, internodiis ad c. 1.3 cm longis. *Folia* patentia, anguste lanceolata, apicem versus paulum angustata, apice oblique obtusa, basi breviter petiolato-contracta, supra in utraque parte costae mediae sulcatae convexa, carnosa, macerata praesertim subtus atro-punctata, c. 1—2.7 cm longa, 0.18—0.43 cm lata; vaginae tubulosae, dense verrucosae, apice setis brevibus adpressis crispulis atris ad c. 0.05 cm longis fimbriatae. *Inflorescentiae* in caule ramulisque terminales, 1florae, vaginula basi tubulosa, ceterum concava, recurva, ovata, acuta, dorso ad apicem carinata, lateraliter compresso-apiculata, laevi, 6nervia, c. 1.1 cm longa, fere 0.6 cm lata. *Bractea* inferne tubulosa, calcar ovariumque includens, ovarium superans, 3nervia, tenerrima, explanata subovalis, breviter acute acuminata, bene 0.9 cm longa, 0.56 cm lata. *Flos* majusculus, maceratus, c. 1.9 cm latus. *Sepalum dorsale* oblongum, obtusum, apiculatum, 5nervium, nervis exterioribus supra basin furcatis, c. 1.3 cm longum, 0.45 cm latum. *Sepala lateralalia* patentissima, oblique oblonga, obtusa, apiculata, basi breviter connata et margine antico in lobulum brevem rotundato-triangularum concavum calcar adpressum dilatata, concava, c. 1.1 cm longa, 0.45 cm lata. *Petala* lata, e basi cuneata oblique ovalia, apice late rotundato-truncata leviterque retusa, 3nervia, nervis exterioribus ramosis, bene 1.2 cm longa, 0.675 cm lata. *Labellum* basi gynostemio adnatum, longe calcaratum, usque ad apicem ovarii bene 0.4 cm longum, lamina concava, 7nervia, explanata late ovata, apice breviter contracta, rotundata atraque, basi transverse incrassata, c. 0.43 cm longa lataque; calcar ovario adpressum, leviter recurvulum, tenue, obtusum, c. 0.6 cm longum. *Gynostemium* dimidio inferiore labello adnatum, medio obtusangule incurvum, dorso longitudinaliter costatum, absque anthera bene 0.2 cm longum, pede abbreviato, clinandrio magno, alte excavato, pariete postico breviter subaequaliter obtuse tridentato,

auriculis paulo longioribus dentiformibus falcato-incurvulis. *Anthera* cucullata, transverse ovalis, apice late rotundata, connectivo vix incrassato, c. 0.15 cm lata. *Pollinia* 4, compressa, oblique ovalia, extus convexa, intus sulco longitudinali lineari instructa, glandula utrinque in lobulum dilatata. *Rostellum* recurvum, bilobulum, concavum, subtus convexum, carnosulum. *Stigma* transversum, margine inferiore elevato recurvo semiorbiculari. *Ovarium* pedicellatum c. 0.8 cm longum.

Central Seran: Source mountains of the Makina, 1000—1200 m, epiphytical in forest (L. RUTTEN n. 2254, 19—20 May 1919; "flowers white").

Provisionally I have described this plant as a variety of *G. amboinensis* J. J. S., from which it differs in the somewhat narrower leaves, broad, blunt, more or less retuse petals and the column being equally tridentate at the apex.

Description from herbarium.

Glomera (sect. *Glossorhyncha*) **lancipetala** J. J. S. n.sp.

Rhizoma tenue, radicans, sicco c. 0.175 cm diam. *Caules* dependentes, elongati, valde ramosi, tenues, teretes, c. 60 cm longi, c. 0.1—0.12 cm diam., ramulis patentibus, apice sursum curvis, leviter flexuosis, internodiis ad c. 2.5 cm longis, superioribus decrescentibus. *Folia* patentia vel erecto-patentia, recurvula, anguste linearia, sicco marginibus incurvis subteretia, macerata semiteretia, canaliculata, obtusa, basi angustata, c. 2.5—3.4 cm longa, 0.125—0.15 cm lata, cum vagina sparse minute atro-punctata; vaginae tubulosae, internodia superantes, longitudinaliter prominenter nervosae, praesertim in nervis parce inconspicue verruculosae, apice laminae opposito lobulo conspicuo adpresso obtuso setis breviusculis adpressis plus minusve crispulis ad c. 0.075 cm longis fimbriato instructae. *Inflorescentiae* terminales, 1florae, haud nutantes, vaginula adpressa, basi breviter tubulosa, dorso prominule nervosa leviter furfuraceo-punctata, everrucosa, explanata ovata, acuta, c. 1.5 cm longa, 0.775 cm lata. *Bractea* similis, prominenter nervosa, magis furfuraceo-maculata, c. 1.5 cm longa. *Flos* satis conspicuus. *Sepali dorsalis* basis tantum adest, convexa, bene 0.4 cm lata. *Sepala lateral*a basi brevissime connata et margine antico in laciniam satis longam calcari adpressam oblique oblongam obtusam concavam c. 0.5 cm longam dilatata, oblique lineari-lanceolata, breviter acute apiculato-acuminata, convexa, superne marginibus incurvis concava, 3nervia, nervis exterioribus ramosis, c. 1.64 cm, margine antico fere 2 cm longa, 0.375 cm lata. *Petala* recurva, oblique subrhombeo-lanceolata, anguste obtusa, 3nervia, nervis exterioribus ramosis, c. 1.7 cm longa, 0.475 cm lata. *Labellum* basi gynostemio adnatum, longe calcaratum, lamina gynostemium duplo superante, concava, apice vix recurvula, 7nervia, explanata tota subrhombea, parte libera quinquangulata, apice contracta rotundata atra, incrassatione transversa semilunata convexa haud abrupte limitata supra basin, tota c. 0.7 cm, parte libera 0.5 cm longa, bene 0.4 cm lata; calcar ovario adpressum et fere aequilongum, bractea vaginulaque inclusum, rectum, tenue, lineare, a dorso compressum,

obtusum, dorso longitudinaliter canaliculatum, c. 1.1 cm longum. *Gynostemium* c. $\frac{2}{5}$ partibus inferioribus labello adnatum, leviter obtusangule incurvulum, dorso convexum, absque anthera fere 0.4 cm longum, clinandrio conspicuo, alte excavato, semiorbiculari, pariete postico alato, ambitu late rotundato crenato-dentato. *Rostellum* porrectum, latum, rotundato-excisum, acute bidentatum. *Stigma* prominens, cum rostello suborbiculare concavum, margine elevatum. *Ovarium* pedicellatum trigonum, angulis sulco longitudinali bicostatis, lateribus concavis, c. 1.2 cm longum.

Central Seran: Goenoeng Moerkele, 1900—2500 m, limestone, forest (L. RUTTEN n.1470, leg. KORNASI 1 July 1918; "flowers white").

Allied to *G. amboinensis* J.J.S. but with much narrower semiterete leaves, much longer vaginula and bract, much narrower petals and the blade of the lip longer and narrower.

Description from herbarium.

Glomera (sect. *Giulianettia*) **plumosa** J. J. S. n. sp.

Rhizoma validum, cauli simile, radicans. *Caules* validi, erecti vel ascendentes, rigidi, plumoso-ramosi, teretes, ad c. 80 cm longi, inferne 0.33 cm crassi, ramulis patentibus tenuibus, internodiis in caule primario ad c. 2—3 cm longis, in ramulis decrescentibus, 0.3—0.4 cm longis. *Folia* lineari-lanceolata, apice obliqua, latere brevior sensim angustata vel brevissime obtuse acuteve dentiformia, latere longiore oblonga obtusa vel subtruncata, basi brevissime contracta cauli adpressa, supra obtusangule canaliculata cum lateribus convexis, subtus convexa, crasse carnea, in caule primario c. 1.5 cm longa, 0.2—0.3 cm lata, dimidio superiore contracta, cetera minora, c. 1—1.2 cm longa, 0.15 cm lata, petiolo 0.1—0.05 cm longo; vaginae tubulosae, dense verrucosae, apice setis adpressis breviusculis grossiusculis crispulis pallidis c. 0.05—0.06 cm longis fimbriatae, internodia aequantes vel paulum superantes. *Inflorescentiae* sessiles, nutantes, 1florae, vaginula satis ampla, basi breviter tubulosa, obtusa, breviter apiculata, extus furfuraceo-punctata, ovarium aequans, c. 0.66 cm longa, interdum vaginula secunda tenuiore altius tubulosa. *Bractea* tenerrima, tubulosa, obtusa, fere 0.6 cm longa. *Flos* parvulus, c. 0.775 cm longus, carnosulus, sepalis petalisque reflexis. *Sepalum dorsale* lanceolatum, a basi apicem versus paulo angustatum, obtusum, longius apiculatum, apice recurvum, convexum, c. 0.75 cm longum, bene 0.2 cm latum. *Sepala lateral*ia basi brevius connata et margine antico in lobum satis conspicuum oblique oblongum obtusum concavum calcari adpressum c. 0.16 cm longum dilatata, oblique lanceolata, subfalcata, parte superiore leviter contracta, obtusa, longe apiculata, convexa, 3nervia, c. 0.7 cm longa, ad lobum c. 0.325 cm, supra lobum bene 0.2 cm lata. *Petala* anguste lanceolata, obtusa, convexa, 3nervia, c. 0.67 cm longa, 0.15 cm lata. *Labellum* basi longitudine fere 0.1 cm gynostemio oblique cupuliformi-adnatum, calcaratum, gynostemium bene superans, usque ad apicem ovarii 0.23 cm, cum calcar 0.64 cm longum, lamina subtus convexa, explanata late quin-

quangulari, obsolete 3lobulata, inferne transverse carnosio-incrassata, c. 0.27 cm longa, 0.35 cm lata, lobulis lateralibus erectis subangulato-rotundatis, lobulo terminali brevissime late triangulo obtuso atro, calcari bractea inclusa, ovario pedicellato brevior, ultra medium lobis sepalorum lateralium oblecto subtereti, dorso applanato, obtuso, recto, c. 0.4 cm longo. *Gynostemium* breve, basi labello adnatum, dorso convexum, c. 0.15 cm longum, clinandrio conspicuo, margine dorsali leviter obtusangule recurvulo, irregulariter crenatolobulato. *Rostellum* latum, semiorbiculare, rotundato-excisum. *Stigma* semiorbiculare, margine inferiore producto recurvo rotundato. *Ovarium* pedicellatum c. 0.6 cm longum.

Central Seran: Goenoeng Moerkele, 1900—2500 m, limestone, forest (L. RUTTEN n.1497, leg. KORNASI 1 July 1918; "flowers light green, lip white").

An interesting plant, being the first extra Papuan species of the section *Giulianettia*. It is well characterized by the relatively short and thick spur.

Description from herbarium and materials preserved in alcohol.

AGROSTOPHYLLUM BL.

Agrostophyllum (sect. *Euagrostophyllum*) **parviflorum** J. J. S. in Bull. Dép. Agric. Ind. Néerl. XIX (1908), 3; in Nova Guinea VIII (1909), 42, t. XIV, 46; SCHLECHTER Orch. D. N. Guinea (1912) 268; Fig. Atl. t. LXXXXVIII, Nr. 363—364.

Central Seran: Kampoeng Hatoeolo, 600 m, forest (L. RUTTEN n.1528, leg. KORNASI 4 July 1918; "flowers yellow").

The plant occurs also in New Guinea and Halmahera.

A species of the section *Appendiculopsis* was collected in West Seran near Piroe 0—300 m (L. RUTTEN n.2268, April 1919) and in East Seran on Goenoeng Oeseil, 100—600 m (L. RUTTEN n.2148, 11 April 1919), but the material was too bad for a satisfactory description. The plant is a near ally of *A. Hasseltii* J. J. S. and of *A. costatum* J. J. S.

MEDIOCALCAR J. J. S.

Mediocalcar (sect. *Brevicalcar*) **seranicum** J. J. S. n. sp.

Rhizoma elongatum, ramosum, radicans, teres, c. 0.3 cm diam., partes adsunt ad 14 cm longae, initio vaginis tubulosis acutis carinatis omnino tectae, radicibus ramosis tenuibus patentissime pilosis. *Pseudobulbi* remoti, ad c. 3 cm distantes, magna parte rhizomati adnati, sicco c. 1—2.4 cm longi, parte libera cum rhizomate angulum acutum faciente, c. 0.1—0.6 cm longa, 1folii. *Folium* lanceolatum, obtusum, brevissime bidentatum cum mucrone vix longiore, basi angustatum canaliculatumque, costa media dorso ad apicem carinata, carnosum, c. 5 cm longum, 1.25 cm latum. *Inflorescentia* 1, pedunculo tereti, c. 1.2—2.5 cm longo. *Bractea* adpressa, e basi breviter annulari-trianguula subulato-acuminata, c. 0.3 cm longa. *Flos* mediocris,

carnosus, c. 0.9 cm longus, bene 0.6 cm altus, adultus gracilior, sepalis in formam urceoli valde obliqui ad medium trifidi connatis, 5nerviis. *Sepalum dorsale* oblongo-triangulum, concavum, totum c. 0.7 cm longum, apice libero triangulo obtusiusculo 0.375 cm longo 0.275 cm lato. *Sepala lateral* oblique triangula, concava, c. 0.9 — 0.95 cm longa, parte libera triangula acutiuscula, c. 0.37 cm longa, 0.4 cm lata. *Petala* gynostemio adpressa, porrecta, oblique lanceolato-subspathulata, apice angustata, anguste obtusa, minutissime oblique bidentata vel breviter apiculata, 3nervia, praesertim apicem versus carnosula, c. 0.675 cm longa, basi 0.13 cm, superne 0.17 cm lata. *Labellum* gynostemio parallelum longiusque, basi pedi gynostemii breviter adnatum, unguiculatum, supra visum ambitu oblongum, concavum, 5nervium, subexplanatum bene 0.8 cm longum, ungue basi utraque latere concavo, exauriculato, explanato oblongo, basi utrinque rotundato, concavo, usque ad basin sacci 0.46 cm longo, basi 0.28 cm lato, lamina basi breviter late rotundato-saccata, ambitu ovata, leviter acuminata, acutiuscula, basi utrinque in lobulum brevem incurvum rotundatum dilatata, concava, cum sacco fere 0.5 cm longa, bene 0.3 cm lata, sacco cum ungue angulum rotundato-acutum faciente, in flexu carnosio-incrassato. *Gynostemium* rectum, apice incurvum, a dorso compressum, oblongum, apice leviter dilatatum oblique truncatum, dorso convexum, acute marginatum, c. 0.6 cm longum, clinandrio transverso excavato, auriculis incurvis rotundatis. *Anthera* cucullata, orbicularis, basi bilobula, c. 0.2 cm lata. *Rostellum* membranaceum, transversum, rotundato-excisum. *Stigma* transverse ovale. *Pes gynostemii* cum ovario angulum acutum, cum gynostemio angulum obtusum faciens, breviter quadrangulus, 0.1 cm longus. *Ovarium* pedicellatum 6sulcatum, c. 1.15 cm longum. *Capsula* subsessilis, elongata, tenuis, basin versus sensim attenuata, flore coronata, c. 2.5 cm longa, rima singula longitudinali dehiscens.

Central Seran: Goenoeng Moerkele, 2000—2500 m, limestone, forest (L. RUTTEN n. 1481, leg. KORNASI 1 July; "flowers red, lip green").

This species is distinguished by a creeping rhizome, one-leaved pseudobulbs, solitary inflorescences, wide flowers and the lip provided with a short pouch and a broad claw without auricles.

Description from herbarium and materials preserved in alcohol.

Another species of the genus was collected by Prof. RUTTEN (n.2256) in Seran, belonging to the section *Eumediocalcar*, but the flowers were not good enough for description.

Also in the collection of E. STRESEMANN I found a species of *Mediocalcar*, but there were no flowers on the specimen.

EPIBLASTUS SCHLTR.

Epiblastus seranicus J. J. S. n.sp.

Pseudobulbi rhizomati omnino adnati, elongati, compressi, lineares, sicco acutanguli, c. 14 cm longi, 1.1 — 1.3 cm lati, 1folii, vaginis alternatim

bifariis imbricatis conduplicatis acutis superioribus accrescentibus articulatis ad c. 12 cm longis initio ad basin. *Folium* articulatum, loriforme, obtusum, basi conduplicatum, costa media supra canaliculata subtus carinata, sicco coriaceum, c. 34—45 cm longum, 3—3.5 cm latum. *Inflorescentiae* terminales, fasciculatae, c. 15—17 florum, pedunculis 1 nodibus, rotundato-trigonis, c. 7.5—9.5 cm longis. *Bractea* erecta, basi breviter tubulosa, triangula, acuta, concava, c. 0.34 cm longa. *Flos* c. 1.3 cm longus latusque, sepalis porrectis, carosis. *Sepalum dorsale* horizontale, ovatum, apice leviter contractum, obtusum, concavum, nervis 5 dorso leviter sulcatis, c. 1 cm longum, bene 0.6 cm latum. *Sepala lateralalia* ad pedem gynostemii decurrentia, mentum latum cum ovario angulum acutum faciens a dorso compressum rotundatum leviter retusum dorso rectum c. 0.36 cm longum 0.7 cm latum formantia, oblique ovato-triangula, apice recurva, leviter acuminata, anguste obtusa acutiusculave, praesertim basi concava, nervis 5 dorso sulcatis, c. 1 cm, margine antico 1.175 cm longa, basi 0.9 cm lata. *Petala* conniventia, apice recurvula, ovato-oblonga, acuta, concava, 5 nervia, costa media dorso canaliculata, carosula, margine tenuiora, c. 0.9 cm longa, bene 0.4 cm lata. *Labellum* erectum, medio fere arcuato-recurvum, unguiculatum, leviter 3 lobum, incrassatione antice dilatata ad lobos laterales latissima terminanteque longitudinaliter canaliculata antice breviter late rotundato-bilobula bene dimidio inferiore margine antico loborum lateralium excepto intus obductum, 7 nervium, inexplatum, c. 0.85 cm longum, explanatum cruciformi-rhombeum, bene 1 cm longum, 0.64 cm latum, ungue ultra medium pedi gynostemii adnato c. 0.35 cm longo, medio 0.27 cm lato, lobis lateralibus erectis, rotundatis, sinibus obsoletis a lobo intermedio sejunctis, lobo intermedio porrecto, apice recurvulo, triangulo, marginibus apice incurvis acuminato, acuto, concavo cum costa convexa longitudinali, c. 0.325 cm longo, 0.375 cm lato. *Gynostemium* breve, crassum, curvulum, dorso convexum cum canaliculis 2 longitudinalibus inconspicuis, subtus visum absque anthera ambitu sexangulare, c. 0.375 cm longum, 0.34 cm latum, clinandrio alte excavato, transverse ovali, margine postico lato leviter obtuse trilobulato, auriculis incurvulis obtusis. *Anthera* cucullata, reniformis, apice breviter obtuse acuminata, c. 0.27 cm lata. *Pollinia* 8, lateraliter compressa, oblique suborbicularia. *Rostellum* auriculis brevius, tenuiter membranaceum. *Stigma* conspicuum, transverse semilunato-subquingulare, margine inferiore rotundatum, angulis anticis oblique truncatum. *Pes gynostemii* cum ovario angulum acutum faciens, rectus, late linearis, c. 0.37 cm longus. *Ovarium* obtuse trigonum, 6 sulcatum, 2.5—2.8 cm longum.

Central Seran: Goenoeng Moerkele (L. RUTTEN n. 1491, leg. KORNASI 1 July 1918; "flowers red").

In the shape of the lip this species much resembles *E. cuneatus* J.J.S. from New Guinea. It is, however, a much larger plant with longer pseudobulbs, larger flowers, different petals, a much shorter column foot. It is more different from *E. buruensis* J.J.S.

Description from herbarium and flowers preserved in alcohol.

PODOCHILUS BL.

Podochilus (sect. Apista) **appendiculatus** J.J.S. in Ic. Bog. II (1913), 50, t. CIX F.

South Seran: Wai Irehea, 600 m, epiphytical in forest (L. RUTTEN n. 1964, 29 January 1919; "flowers white, lip rosy").

In all its parts the Seran plant is smaller than the type from Ambon, but the shape of the flowers is exactly the same.

APPENDICULA BL.

Appendicula (sect. Eu-appendicula) **reflexa** BL. Bijdr. (1825), 301; etc. Central Seran: Near Kaniki, 600 m, bank vegetation (L. RUTTEN n. 1389; leg. KORNASI 23 June 1918).

Appendicula (sect. Chaunodesme) **latilabium** J.J.S. Orch. Amb. (1905), 89. var. **seranica** J. J. S. n. var.

Caules approximati, elongati, simplices, foliati, ad c. 66 cm longi, internodiis ad c. 2—2.4 cm longis, superioribus brevioribus. *Folia* patentia, subovato-lanceolata, apice sensim angustata vel subacuta, apice angusto suboblique obtuse vel acutiuscule bidentata cum mucrone longiore interposito, basi paulum angustata canaliculata caulem semiamplectentia, in utraque parte costae mediae dorso prominentis nervo 1 majore nonnullisque minoribus, sicco papyracea, ad c. 7—10 cm longa, 1.4—1.8 cm lata, superiora decrescentia; vaginae tubulosae, internodia superantes, apice truncatae, antice excisae. *Inflorescentiae* terminales axillaresque, basi paulum ramosae, nutantes, densius multiflorae, pedunculo c. 1.3—1.8 cm longo, vaginulis basi tubulosis imbricatis obtusis acutisve sicco prominenter nervosis omnino oblecto, rachide 3 cm et plus longa. *Bractae* oblongo-ovatae, versus apicem leviter contractae, concavae, nervis 5 dorso prominentibus, c. 0.65 cm longae, bene 0.3 cm latae. *Flores* macerati c. 0.85 cm longi. *Sepalum dorsale* erectum, anguste oblongum, apice breviter triangulum cum dente minuto utrinque, concavum, dorso everrucosum, nervis 3 praesertim intermedio dorso prominulis, dorso sparse nigro-punctatum, c. 0.65 cm longum, bene 0.2 cm latum. *Sepala lateral*ia ad pedem columnae decurrentia, mentum incurvulum cum ovario angulum acutum faciens truncato-obtusum c. 0.3 cm longum formantia, oblique triangula, margine antico basin versus dilatato omnino libera, apice recurvulo conspicue angustata, obtusa, basi oblique rotundata, concava, nervis 4 dorso prominentibus, dorso sparse nigro-punctata, c. 0.6 cm, margine antico bene 0.7 cm longa, basi 0.5 cm lata. *Petala* oblique spatulata, obtusa, 3nervia, c. 0.6 cm longa, ungue oblongo, 0.3 cm longo, 0.14 cm lato, lamina 0.3 cm longa, 0.22 cm lata. *Labellum* erectum, medio rectangule in $\frac{2}{3}$ supra basin obtusangule recurvum, ungue concavo, appendice multo brevior et angustior conduplicata postice obtusangula antice in

lamellas 2 marginibus parallelas in $\frac{3}{5}$ partibus supra basin incurvas in costas dilatatas incrassatas convexas abientes antice evanescentes praedito apice in canalicula callo parvo donatum, 5nervium, inexplanatum c. 0.36 cm' longum, explanatum ambitu subelliptico-oblongum, parte recurva apicali apice breviter contracta truncataque marginibus minute crenulata, basi angustatum truncatumque, totum c. 0.675 cm longum, 0.35 cm latum. *Gynostemium* cum ovario angulum obtusum faciens, dorso convexum, cum rostello fere 0.3 cm longum, clinandrio excavato, margine postico lato semiorbiculari emarginato, auriculis triangulis obtusis. *Rostellum* porrectum, e basi lata abrupte contractum, acute bidentatum. *Stigma* semiorbiculare. *Pes gynostemii* cum ovario angulum acutum faciens, incurvulus, lineari-oblongus, truncatus, concavus, costa longitudinali validissima canaliculis 2 altis limitata instructus, c. 0.3 cm longus. *Ovarium* pedicellatum c. 0.85 cm longum.

Central Seran: Kaniki, c. 600 m, forest (L. RUTTEN n. 534, leg. KORNASI 23 November 1917; "flowers yellow").

I have described this plant provisionally as a variety of *A. latilabium* J.J.S. which it resembles closely in many respects. It differs especially in the colour of the flowers and the shape of the lip. The difference in colour might be put down to the fact that the specimen when collected bore only older flowers. As I have, however, already stated, the indications about colours are, generally speaking, not very reliable. And as to the shape of the fleshy lip it might be possible that this part, in being soaked, has not completely regained its normal shape. At any rate better material is desirable.

Description from herbarium.

Appendicula (sect. Chaunodesme) **seranica** J. J. S. n. sp.

Caules elongati, simplices, sectione transversa elliptici, c. 22—51 cm longi, basi vaginati, ceterum foliati, internodiis c. 0.5—1 cm longis. *Folia* erecto-patentia, basi semitorta, sessilia, anguste oblonga, apicem versus paulum angustata, apice minute crenulata, suboblique obtuse bilobula cum mucrone paulo brevior falcato-incurvo interposito, basi fere amplexicaulia, costa media supra sulcata subtus prominente, sicco papyracea, c. 2.4—4.5 cm longa, 0.6—1.4 cm lata; vaginae tubulosae, internodia superantes, sectione transversa ellipticae. *Inflorescentia* versus apicem caulium, elongatae, multiflorae, diu flores gignentes, simplices, pedunculo c. 1.2—2 cm longo, nonnullis vaginulis foliaceis tecto, rachide 4.5—7 cm et plus longa, internodiis 0.2—0.3 cm longis. *Bracteae* reflexae, concavae, ovali-oblongae obtusae vel minute bidentatae, apiculatae, superne crispulae, nervis 5 dorso prominulis, c. 0.675 cm longae, 0.36 cm latae. *Flores* quaquaversi. *Sepalum dorsale* ovatum, apice interdum leviter contractum, obtusum, basi latum, concavum, 3nervium, nervis dorso vix prominulis, c. 0.45 cm longum, 0.27 cm latum. *Sepala lateralialia* lacinia lata oblique ad pedem gynostemii decurrentia, mentum satis conspicuum cum ovario angulum acutum faciens oblongum subcylindricum

obtusum c. 0.36 cm longum formantia, oblique triangula, acuta, concava, nervis 3 dorso prominulis, c. 0.5 cm, margine antico fere 0.7 cm longa, basi fere 0.6 cm lata. *Petala* apice recurva, oblique subspathulato-oblonga, obtusa, concava, 1nervia, c. 0.38 cm longa, ungue medio c. 0.1—0.15 cm lato, lamina oblique subquadrangula, c. 0.18—0.2 cm lata. *Labellum* (maceratum) erectum, marginibus apiceque recurvum, leviter undulatum, 3nervium, concavum, appendice hippocrepidiformi rotundata vix retusa concava, ungue labelli bene brevior cruribus antice evanescentibus, inexplanatum c. 0.5 cm longum, explanatum ambitu rhombeum, 3lobum, fere 0.6 cm longum, ad lobos laterales 0.4 cm latum, lobis lateralibus recurvis obtusis, lobo intermedio subquadrangulo vel potius subsexangulato, apice subcrenulato, c. 0.16 cm longo, fere 0.2 cm lato. *Gynostemium* (antheris 2 extraordinariis imperfectis foecundatum) dorso convexum, c. 0.2—0.26 cm longum, clinandrio concavo, margine postico denticulato. *Anthera* cucullata, ovato-triangula, lobulis 2 basilaribus cordata, satis acuta, egibbosa, bene 0.1 cm lata. *Rostellum* porrectum, triangulum, acute bidentatum. *Pes gynostemii* cum ovario angulum acutum faciens, apice incurvus, late linearis, c. 0.36—0.4 cm longus. *Ovarium* 6sulcatum, c. 0.6 cm longum; pedicellus 0.25 cm longus. *Capsula* reflexa, clavata, 6costata, c. 1.5—1.6 cm longa, flore marcido coronata, rima 1 longitudinali dehiscens.

Central Seran: Near Kaniki, 600 m, bank vegetation (L. RUTTEN n.1397, leg. KORNASI 23 June 1918; "flowers white, lip a little yellow"). Kampoeng Hatoeolo, 600 m, forest (L. RUTTEN n.1540, leg. KORNASI 5 July 1918; "flowers yellow, lip white").

The description of this species is, on account of the condition of the material at hand, not all that can be desired. In n.1397 the flowers were fertilized by an extra couple of anthers but had for the rest fairly well kept their natural shape. In n.1540 the phenomenon of selffertilisation, so common in the genus *Appendicula* especially in the eastern part of the Archipelago, had proceeded already further on in consequence of the flowers having become hemi-peloric. The lip showed a much simpler structure, oblong, somewhat constricted in two third of its length above the base, whereas the horseshoe-shaped appendage was completely absent. The column was, apart from the extra anthers, pretty well normal, but the column foot was, although distinct, very much shortened.

Description from herbarium

PSEUDERIA SCHLTR.

Pseuderia foliosa SCHLTR. Orch.D.N.Guinea (1912), 644. — *Dendrobium foliosum* BRONGN. in DUP. Voy.Coq.(1829), 203, t.XLI; J.J.S. Orch. Amb. (1905), 72; KRZL. in Pflanzenr. IV.50.II.B.21 (1910), 197 (excl. syn. *D. frutex* SCHLTR.). — *D. spinescens* LNDL. in Journ. Linn. Soc. III (1859), 14; MIQ. Fl.Ind.Bat. III (1859), 638. — *Eria foliosa* RIDL. in Journ. Bot. XXIV

(1886), 326. — *Callista foliosa* O.K. Rev.gen.pl.II (1891), 654. — *C. spinescens* O.K. l.c 655.

Ambon: Hoekoerila, 0–100 m, forest-road (L. RUTTEN n.1147, leg. KORNASI 16 April 1918; “flowers yellow, lip light red”).

Central Seran: Source mountains of Wai Makina, 500 m, forest (L. RUTTEN n.2230, 17 May 1919; “flowers yellow”).

South Seran: North of Wai Noea, 600 m, forest (L. RUTTEN n.1962, 29 January 1919; “flowers yellow, spotted dirty rosy outside”).

DENDROBIUM Sw.

Dendrobium (sect. *Diplocaulobium*) **dilatatocolle** J.J.S. in Ic. Bog.II (1903), 85, t CXVI A. — *Diplocaulobium dilatatocolle* KRZL. in Pflanzenr. IV.50.II.B. 21 (1910), 336.

East Seran: Wai Boela, 0–200 m, forest, epiphytical (L. RUTTEN n. 2157, 12–13 April 1919; “flowers yellow”).

Central Seran: Goenoeng Moerkele (L. RUTTEN, KORNASI, liv. plant cult. in Hort.Bog.sub n.221).

The species was described from a plant cultivated in the Buitenzorg Botanic Gardens, the origin of which was unknown. Afterwards a somewhat different variety was collected in Halmahera by Mr. LAURENS, who presented the Buitenzorg Gardens with a living specimen.

Dendrobium (sect. *Desmotrichum*) **rhpidolobum** SCHLTR. in SCHUM. et LAUT. Nachtr.Fl.D.Schutzgeb. Südsee (1905), 151; Orch.D.N Guinea (1912), 455; J.J.S. in Nova Guinea VIII (1909), 60, t.XXII, 70.

South Seran: Amahai (M. TREUB, liv.pl.cult. in Hort.Bog. sub n. 580b).

Dendrobium (sect. *Rhopalanthé*) **ephemerum** J.J.S. in MERR. Interpret. Herb.Amb. (1917), 174; in Phil.Journ.Sc. XII (1917), C.Bot. 256. — *D. papi-lioniferum* J.J.S. var. *ephemerum* J.J.S. Orch.Amb. (1905), 45. — *Angraecum album minus* RUMPH. Herb.Amb.VI, 99, t.44, f.l.

North Seran: ? Road from Wahai to Roho, near Wai Koea, c.50 m, forest, not many (L. RUTTEN; “vern. name *Kaipada*; flowers white”). Pasir Poetih, 0 m, beach, on *Calophyllum*, abundant (L. RUTTEN n.200, leg. KORNASI 5 October 1917).

South Seran: Wai Tana, 0–100 m, forest, bank vegetation, epiphytical (L. RUTTEN n.2051, 9 February 1919; “flowers white”) Wai. Piha, 0–100 m, forest (L. RUTTEN n.2085, 16 February 1919; “flowers yellow with an orange streak on the lip”).

East Seran: Wai Matakabo, 0–100 m, epiphytical in forest, bank vegetation (L. RUTTEN n.402, 27 October 1917; “flowers white”).

Dendrobium (sect. Rhopalanthe) **papilioniferum** J. J. S. Orch. Amb. (1905), 42; in Phil.Journ.Sc.XII (1917), C.Bot.256.—*D. crumenatum* SWARTZ var. *papilioniferum* KRZL. in Pflanzenr. IV.50,II.B.21 (1910), 237 (excl. syn. *D. papilioniferum ephemerum* J. J. S.).—*D. crumenatum* SWARTZ fl. lilac. MIQ. Choix t.XXII, f.1.—*Angraecum crumenatum* RUMPH. Herb.Amb.VI.t. 47, f. 2.

A m b o n : Goenoeng Batoe Gantong, 0--200 m, brambles (L. RUTTEN n.1090, leg. KORNASI 3 April 1918; "flowers white, lip light red").

West Seran: Loki (L. RUTTEN, KORNASI, liv. plant, cult. in Hort Bog. sub n.193).

Dendrobium (sect. Rhopalanthe) **acinaciforme** RXB. Hort.Beng. (1814), 63 (nomen nudum); Fl.Ind.ed.2, III (1832), 487; J. J. S. in MERR. Interpret. Herb.Amb.(1917), 173; KRZL. in Pflanzenr. IV.50. II.B.21 (1910), 207.—*D. scalpelliforme* T. et B. in Nat.Tijdschr. Ned.Ind.XXVII(1864), 17; J. J. S. Orch.Amb.(1905), 111; KRZL. 1. c.—*Herba supplex major prima* s. *Herba supplex femina* RUMPH. Herb. Amb. VI, 111.

S e r a n. (W. RUINEN, liv.pl.cult. in Hort.Bog. sub n.5).

Dendrobium (sect. Rhopalanthe) **obcordatum** J. J. S. n. sp.

Caules approximati, elongati, valde ramosi, c. 1.1 m longi, supra basin in pseudobulbum longum sicco tenuem multicostatumque c. 4nodem c. 17—23 cm longum 0.4—0.55 cm diam. incrassati, supra pseudobulbum laxe serpentine, valde compressi, foliati, nitide flavi, parte superiore folia rudimentaria gerentes, internodiis ad c. 4.2—5 cm longis, basi 0.275—0.325 cm apice 0.45—0.5 cm latis, superioribus brevioribus angustioribusque. *Folia* patentia, equitantia, lateraliter compressa, saepe leviter recurvula, sublinearia, apicem versus sensim angustata, acuta, carnosa, lateribus convexa, ad c. 6.3 cm longa, 0.4 cm lata, superiora decrescentia; vaginae tubulosae, internodiis aequilongae vel saepe paulo breviores, lateraliter compressae. *Inflorescentiae* e nodis partis superioris folia rudimentaria gerentis sed etiam in parte foliata, brevissimae, fasciculares, pedunculis abbreviatis, 1floris, nonnullis vaginulis ad basin. *Flos* fere 1.1 cm longus, 0.9 cm latus. *Sepalum dorsale* cum ovario angulum subrectum faciens, apice recurvulum, ovato-triangulum, obtusum, convexum, apice concavum, 3nervium, nervo minimo utrinque, c. 0.44 cm longum, 0.275 cm latum. *Sepala lateralalia* lacinia oblique triangula ad pedem gynostemii decurrentia, mentum conspicuum cum ovario angulum acutum ad obtusum faciens valde incurvum conicum apice leviter contractum obtusum dorso convexum cum canaliculis 2 longitudinalibus c. 0.6 cm longum formantia, oblique triangula, acuta, basi concava, apice recurvo convexa, 3nervia, c. 0.44 cm, margine antico 0.85 cm longa, basi rotundata c. 0.78 cm lata. *Petala* divergentia, oblique oblonga, basi apiceque obtusa, convexa, 1nervia, bene 0.4 cm longa, 0.18 cm lata. *Labellum* basi apici pedis gynostemii brevissime adnatum, eo parallelum, in $\frac{2}{5}$ partibus supra valde rotundato-recurvum, parte inferiore

concavum, parte superiore marginibus recurvum undulatumque, intus fascia incrassata longitudinali basin non attingente 3costulata, costula intermedia superne evanescente, costulis exterioribus majoribus infra sinum in nonnullas costulas longitudinales solutis, 3nervium, nervis exterioribus ramosis, inexplanatum c. 0.7 cm longum, explanatum ambitu cuneato-obovatum, leviter 3lobum, basi excepta irregulariter marginatum, c. 1 cm longum, 0.625 cm latum, lobis lateralibus brevibus, late rotundatis, lobo intermedio bene longiore, hypochylis angustiore, ambitu subsemiorbiculari, altius rotundato-bilobulo, bene 0.2 cm longo, 0.5 cm lato. *Gynostemium* brevissimum, latum, conicum absque anthera 0.16 cm longum, filamento subulato, auriculis conspicuis triangulis obtusis vel potius oblique truncatis et plus minusve quadrangulis. *Anthera* cucullata, antice plana, subsemiovalis, apice truncato brevissime ciliolata, c. 0.13 cm lata. *Stigma* quadrangulum, margine inferiore rotundatum. *Pes gynostemii* cum ovario angulum rectum vel acutum faciens, incurvus, oblongus, obtusus, concavus, excavatione longitudinali oblonga dorso convexo-prominente ad apicem, intus costa longitudinali in excavatione in glandulam longitudinalem oblongam exeunte praeditus, inexplanatus 0.64 cm longus. *Ovarium* teres, tenue, leviter 6sulcatum, c. 0.2 cm longum; pedicellus 0.55 cm longus.

North Seran: Pasir Poetih, 0 m, beach, on *ketapan* (*Terminalia Catappa* L.) abundant (L. RUTTEN n.203, leg. KORNASI 5 October 1917; "flowers white with red streaks, lip yellow").

East Seran: Wai Matakolo, 0–100 m, forest, bank vegetation, epiphytical (L. RUTTEN n.396, 27 October 1917; "flowers white, streaked brown").

South-east Seran: Atiahoe, 0 m, kampong near the sea (L. RUTTEN n.1037, leg. KORNASI 22 February 1918; "flowers yellow with red streaks").

South Seran: Kampong Makariki, 0 m, epiphytical (L. RUTTEN n.2075, 12 February 1919; "flowers white, underlip with thin red streaks").

Though this plant appears to be rather common along the coast in Seran and therefore will occur probably also on the neighbouring islands, I have failed in finding a description to suit it.

It differs from *D. eboracense* KRZL. in the stems being multicostate at the base, shorter leaves, an ovate obtuse dorsal sepal, oblong blunt petals, and the lip being broadly bilobed at the apex; from *D. confundens* KRZL. in the much longer in sicco multicostate swollen part of the stems, larger flowers, a blunt dorsal sepal, triangular acute lateral sepals, and a rather deeply bilobed midlobe of the lip; from *D. Macfarlanei* F. v. MUELL. in the much thinner stems, narrower leaves, whereas also the flowers show differences.

In n. 2075 the stems are still thinner and there are no good flowers on the material, so that its identity is not quite sure.

Description from herbarium and materials preserved in alcohol.

Dendrobium (sect. Strongyle) **?confusum** SCHLTR. in FEDDE Rep. X(1912), 72; XXI(1925), 153; J. J. S. in Nova Guinea XII (1916), 298.—*D. salicornioides* J.J.S. (non T. et B.) Orch.Amb. (1905), 52.—*D. parciflorum* KRZL. (non RCHB. F.) in Pflanzenr. IV.50.II.B.21 (1910, 222, Fig. 15, G-M.

East Seran: Waroe, 0 m, coast-kampong (L. RUTTEN n.975 leg. KORNASI 6 February 1918; "flowers white").

The determination is somewhat doubtful on account of the flowers are wanting on the material.

The species has been collected in Selebes, Ambon and New Guinea.

Dendrobium (sect. Aporum) **calceolum** RXB. Hort.Beng.(1814), 63, (nomen nudum); Fl.Ind. ed 2, III(1832), 488; MIQ. Fl.Ind.Bat.III (1859), 630; J.J.S. Orch.Amb.(1905), 49.—*D. Roxburghii* LNDL. in Journ.Linn.Soc.III(1859), 4.—*Aporum Roxburghii* GRIFF. in Calc. Journ.Nat.Hist.V(1835), 370 — *Callista calceola* O. K. Rev.gen.pl.II(1891), 654.—*Herba supplex quinta* RUMPH. Herb.Amb.VI,III, t.LI, f. 2.

North Seran: Seleman, 0—100 m, coast vegetation (L. RUTTEN n.2010, 3 February 1919; "flowers yellow, with the exception of the lip with thin red longitudinal streaks").

East Seran: Wai Boela, 0—200 m, forest (RUTTEN n.2158, 12—13 April 1919).

South Seran: Atiahoe, 0 m, coast kampong (L. RUTTEN n 1036, leg. KORNASI 22 February 1918).

In his monograph KRÄNZLIN intends to unite this species with the totally different *D. leonis* RCHB. F.

Dendrobium (sect. Monanthos) **crenatilabre** J.J.S. in Bull.Jard.Bot.Buit. 2e sér.III(1912), 21; in Nova Guinea XII (1913), 55, t.XV, 43.

var. **seranicum** J.J.S. n. var.

Caules elongati, flexuosi, compressi, sicco nitidi, dilute fuscescentes, c. 66 cm longi, 0.3 cm lati, internodiis basi paulo angustatis ad c. 4 cm longis, superioribus brevioribus. *Folia* erecto-patentia, linearia ad oblongo-linearia, oblique obtuse biloba, basi breviter cuneata brevissime contracta et transverse rugulosa, margine plerumque minutissime undulata, in utraque parte costae mediae nervis 2 majoribus pluribusque tenuibus, sicco nervis omnibus subtus costa media excepta etiam supra prominentibus, rigide coriacea, c. 3.9—6.7 cm longa, 0.85—0.975 cm lata; vaginae tubulosae, internodia paulo superantes compressae, sectione transversa anguste ellipticae, praesertim ad apicem transverse rugulosae, apice 0.45—0.475 cm latae, apice laminae opposito dente conspicuo adpresso conduplicato triangulo apiculato transverse ruguloso instructae. *Inflorescentia* e nodis caulium, 2 vaginas perforantes, abbreviatae, patentis, 1florae, pedunculo c. 0.26 cm longo. *Bractea* minuta, adpressa, triangula. *Flos* maceratus c. 1.3 cm latus, 1 cm longus. *Sepalum dorsale* apice recurvum, triangulum, subacutum, convexum, 5nervium, c. 0.9 cm longum, 0.47 cm

latum. *Sepala lateral*ia lobo oblique triangulo ad pedem gynostemii decurrentia, mentum breve rotundatum formantia, oblique triangula, acutiuscula, 5nervia, c. 0.9 cm, margine antico 0.95 cm longa, basi bene 0.9 cm lata. *Petala* oblique lanceolata vel subspathulato-lanceolata, anguste obtusa, 3nervia, c. 0.85 cm longa, c. 0.2—0.24 cm lata. *Labellum* apice recurvum, 5nervium, nervis exterioribus ramosis, carnosum, explanatum ellipticum, obtusum, circiter dimidio superiore crenulatum, superne papillosum, parte superiore intus transverse rugulosum, c. 0.8 cm longum, 0.43 cm latum. *Gynostemium* breve, crassum, dorso convexum, absque anthera c. 0.24 cm longum, filamentum brevi, subulato. *Anthera* cucullata, breviter conica, apice truncata, fere 0.2 cm lata. *Pes gynostemii* oblongus, c. 0.7 cm longus. *Ovarium* obconicum, 6sulcatum, c. 0.65 cm longum.

Central Seran: Boundary mountains of the Makina, 1000—1200 m, forest, epiphytical (L. RUTTEN n.2259, 19—20 May 1919; "flowers orange").

Very like *D. crenatilabre* J. J. S. from New Guinea but only a single strongly pressed flower being present I have provisionally described it as a variety.

Description from herbarium.

***Dendrobium* (sect. *Grastidium*) *cucullitepalum* J. J. S. n. sp.**

Validum. *Caules* elongati, simplices, inferne teretes, superne sectione transversa elliptici, ad c. 2.2 m longis, inferne c. 0.4 cm, superne ad 0.55 cm lati, internodiis 5—2.2 cm longis. *Folia* patentia, lanceolata, apicem versus angustata, breviter inaequaliter obtuse bilobula, nervis numerosis sicco praesertim subtus tenuiter prominentibus, sicco rigide tenuiter coriacea, ad c. 13.5—14 cm longa, 2.85—3 cm lata, superiora et etiam inferiora decrescentia; vaginae tubulosae, internodia aequantes vel paululum superantes, sicco dense longitudinaliter tenuiter prominenter nervosae et minutissime transverse rugulosae. *Inflorescentiae* infra nodos caulium ortae, vaginam folii inferioris apice antice perforantes, brevissimae, 2florae, pedunculo brevi, crasso, lateraliter compresso, sectione transversa ovali, c. 0.5 cm longo, nonnullis vaginulis tubulosis lateraliter compressis semiorbicularibus c. 0.45 cm longis 0.7 cm latis ad basin cincto. *Bracteae* brevissimae, latae, concavae. *Flores* adsunt marcidi, sepalis petalisque valde incurvis, carnosis. *Sepalum dorsale* spathulato-obovatum, apice incurvo-cucullatum rotundatumque, concavum, dorso apice margineque verrucosum, c. 7nervium, c. 1.15 cm longum, basi 0.35 cm, apice 0.63 cm latum. *Sepala lateral*ia oblique oblonga, sigmoidea, supra basin margine antico rotundatam plus minusve constricta, apicem versus paululum dilatata, apice incurva obtusaque, valde concava, dorso verrucosa, c. 1.1 cm longa, basi c. 0.5 cm, supra basin 0.3 cm, infra apicem 0.46 cm lata. *Petala* oblique spathulata, falcata, apice cucullato-incurva obtusissima et carnosio-incrassata, concava, 5nervia, c. 0.95—1 cm longa, basi 0.13—0.2 cm longa, apice 0.4—0.5 cm lata. *Labellum* parvum, 3lobum, in $\frac{1}{3}$ supra basin obtusangule lobo intermedio valde

recurvum, fascia longitudinali latiuscula muricium irregularium satis crassarum obtusarum plus minusve cohaerentium inter lobos laterales, infra basin lobi intermedii dense muriculatum, 5nervium, inexplanatum c. 0.5 cm longum, explanatum ambitu late cuneato-triangulum, basi truncatum, c. 0.625 cm, usque ad apicem loborum lateralium 0.525 cm longum, 0.65 cm latum; lobi laterales erecti, incurvi, concavi, oblique trianguli, obtusi, erosuli, intus lamellis numerosis transversis irregulariter incisus ornato margine antico 0.25 cm longi; lobus intermedius triangulus, acutus, erosus, undulatus, c. 0.27 cm longus, 0.28 cm latus. *Gynostemium* breve, crassum, infra clinandrium constrictum, dorso convexum, absque anthera c. 0.275 cm longum, 0.23 cm latum, clinandrio alte excavato, transverse subovali, margine postico triangulo-producto, obtuso, filamentum filiformi, auriculis porrectis parallelis, aequilateraliter trapeziformibus, apicem versus paulo angustatis, truncatis et minutissime crenulato-repandulis. *Stigma* basilare, quinquangulare-orbiculare. *Pes gynostemii* cum ovario angulum obtusum fere rectum faciens, valde incurvus, oblongus, apicem versus angustatus, truncatus, concavus, dorso convexus, c. 0.37 cm longus. *Ovarium* crassum, obconicum, valde 6costatum, costis longitudinaliter bisulcatis, minutissime punctulatum, c. 0.64 cm longum.

Ambon: Kampong Koeda Mati, 0—20 m (L. RUTTEN n. 1112, leg. KORNASI 8 April 1918; "flowers yellow, lip black").

Very near *D. aromaticum* J. J. S. from New Guinea but with longer stems, smaller less warty flowers, with the petals narrower towards the base, relatively longer side-lobes and a smaller midlobe, whereas also the stigma is different.

Description from herbarium and somewhat faded flowers preserved in alcohol.

Dendrobium (sect. *Grastidium*) **pruinatum** T. et B. in Nat. Tijdschr. Ned. Ind. XXIV (1862), 314; J. J. S. Orch. Amb. (1905), 57; in Nova Guinea VIII (1909), 75, t. XXVI, 82; XII (1916) 305; KRZL. in Pflanzenr. IV. 50. II. B. 21 (1910), 197. — *D. crispilobum* J. J. S. in FEDDE Rep. XI (1912), 136.

Ambon: Goenoeng Batoe Gantoeng, 0—200 m, brambles (L. RUTTEN n. 1089, leg. KORNASI 3 April 1918).

Also collected in the Kai Islands and New Guinea.

Dendrobium (sect. *Grastidium*) **macrostigma** J. J. S. n. sp.

Validum. *Caules* elongati, sectione transversa elliptici, nitidi, straminei pars adest c. 66 cm longa, internodiis ad c. 4.4 cm longis, ad 0.5 cm latis basi angustioribus, superioribus decrescentibus. *Folia* patentia, basi semitorta lineari-lanceolata, apicem versus angustata, anguste obtusa, nervis c. 7 majoribus pluribusque tenuioribus sicco subtus et costa media supra sulcata excepta etiam supra prominentibus, siccopapyracea, ad c. 13—16 cm longa, 1.95—2.2 cm lata; vaginae tubulosae, internodia superantes, sicco prominule nervosae et subtiliter transverse rugulosae, apice truncatae, opacae. *Inflorescentiae* nume-

rosae, infra nodos caulium ortae, e vaginas perforantes, brevissimae, patentissimae, nonnullis vaginulis lateraliter compressis ad c. 1.1 cm longis 0.8—0.9 cm latis ad basin, vaginula exteriore 0.35 cm longa. *Flores* macerati carnosuli, c. 1.9 cm longi. *Sepalum dorsale* oblongum, apice rotundatum, basi concavum, superne convexum, 5nervium, c. 1.4 cm longum, 0.6 cm latum. *Sepala lateralialia* cum pede gynostemii mentum breve dorso convexum c. 0.6 cm longum formantia, oblique oblongo-triangularia, vix falcata, obtusa, 5nervia, c. 1.4 cm longa, basi 0.9 cm lata. *Petala* oblique spathulato-obovato-oblonga, obtusa, concava, 3nervia, c. 1.4 cm longa, 0.475—0.625 cm lata. *Labellum* mobile, porrectum, medio leviter obtusangule recurvulum, concavum, 3lobum, costa longitudinali in flexu altissima ante basin lobi intermedii dilatata et sulco longitudinali in lobo medio duplicata (?) ante apicem evanescente, glabrum, 5nervium, inexplanatum 0.85 cm longum, explanatum ambitu rhombeum, 1 cm usque ad apicem loborum lateralium 0.6 cm longum, 0.625 cm latum; lobi laterales oblique trapezoidei, margine antico oblique truncati et subirregulares, angulo antico brevissime producti, angulo exteriore subrectanguli obtusi, lobus intermedius late angulato-ovatus, apice in lobulum minutum triangulum obtusum productus, concavus, c. 0.44 cm longus, 0.475 cm latus. *Gynostemium* longum, anguste conicum, subteres, rectum, dorso convexum, infra clinandrium constrictum, cum anthera c. 0.625 cm longum, ad stigma 0.2 cm latum, clinandrio alte excavato, subquadrato, utrinque truncato irregulariterque denticulato, filamento subulato. *Anthera* magna, cucullata, supra visa ambitu oblonga, medio fere constricta, parte inferiore quadrangula postice alte in thecas 2 partita, appendice 6angulata truncata a dorso compressa supra convexa cum incrassatione longitudinali convexa verruculosaque subtus concava, c. 0.2 cm longa. *Pollinia* 4, in corpuscula 2 subsemiorbicularia supra convexa unita, 2 interiora quam exteriora longiora c. 0.13 cm longa. *Stigma* conspicuum, faciem inferiorem gynostemii fere omnino occupans, concavum, ellipticum, margine inferiore in lobulum reversum horizontalem truncatum productum et introrsum lobulis 2 oblique oblongis falcato-recurvis obtusis instructum. *Pes gynostemii* cum ovario angulum acutum cum gynostemio angulum obtusum faciens, medio rotundato-obtusangule incurvus, oblongus, apicem versus angustatus, truncatus, concavus, dorso convexus cum canalicula longitudinali inconspicua, c. 0.6 cm longus. *Ovarium* oblique obconicum, 6sulcatum, minutissime puncticulatum, c. 0.5 cm longum; pedicellus tenuior, c. 0.9 cm longus. *Capsula* carnea, in valvas 3 crasse lineares et 3 oblongo-ellipticas basi apiceque connatas dehiscens, c. 3 cm longa.

West Seran: North of Wai Kawa, 200—300 m, forest, epiphytical (L. RUTTEN n.1855, 8 November 1918; "basal part of flowers white, apical part pale rosy, fragrant").

South Seran: Wai Kaba, east of Laimoe, 100—400 m, forest, bank vegetation, sandstone rocks (L. RUTTEN n.344, 18 October 1917; "flowers white").

This plant belongs to a group of species with non-fleshy leaves, *e.g.* *D. patentissimum* J.J.S., *D. erectopatens* J.J.S., *D. giriwoense* J.J.S., *D. gatiense* SCHLTR., *D. podochiloides* SCHLTR. etc., which are all Papuan.

I am not quite sure that the keel of the lip is indeed grooved on the midlobe.

In n. 1855 the roots are thick, and the stems measure 1.1 m.

Description from herbarium.

Dendrobium (sect. *Latouria*) **Ruttenii** J. J. S. in Bull.Jard.Bot. Buit. 3e sér. II (1920), 69.

North Seran: Kali Koea, Wahai (L. RUTTEN without number, leg. KORNASI 27 August 1917; also liv. pl. cult. in Hort. Bog. sub n.60).

Dendrobium (sect. *Latouria*) **bifalce** LNDL. in Lond. Journ. Bot. II (1843), 237; etc.

North Seran: Wahai, Batoe Kapiran, 0 m, coast-vegetation (L. RUTTEN n.746, leg. KORNASI 28 December 1917; "flowers light yellow, lip white"; also liv. pl. cult. in Hort. Bog. sub nr.142).

Dendrobium (sect. *Ceratobium*) **taurulinum** J. J. S. in Bull.Jard.Bot.Buit. 3e sér. II (1920), 72.

North Seran: Beach near Wai Pasahari, 0 m, on *Casuarina* (L. RUTTEN n.156, 24 September 1917; "flowers yellowish green"). Wahai, Pasir Poetih, 1 m, sandy beach, on *Calophyllum* (L. RUTTEN n.205, 5 October 1917; also liv.pl.cult. in Hort.Bog.sub n.140).

Central Seran: Kampong Maraine, 800—900 m (L. RUTTEN n.1448, leg. KORNASI 30 June 1918; "flowers light green, lip white").

Dendrobium (sect. *Ceratobium*) **Demmenii** J. J. S. in Bull.Jard.Bot.Buit. 3e sér. II(1920), 73.

West Seran: Talaga, 0 m, rock on the shore (L. RUTTEN n.1191, leg. KORNASI 30 May 1918; "flowers light green, lip violet").

Formerly I received living specimens of this species which were said to come from Boeroe and the Soela Islands. These informations want affirmation.

Dendrobium (sect. *Ceratobium*) **Mirbelianum** GAUD. Bot. FREYC. Voy. (1826), 423, t.XXXVIII; etc.

West Seran: East Hoanoel, Kampong Wai Poetih, 0 m, coast vegetation (L. RUTTEN n.1213, leg. KORNASI 2 May 1918).

North Seran: Wahai (L. RUTTEN without number, leg. KORNASI 26 April 1917).

South-east Seran: Toem, 0 m, bank vegetation (L. RUTTEN n.885, leg. KORNASI 23 Januari 1918; "vern.name *tabisasoe*").

Dendrobium (sect. *Oxyglossum*) **murkelense** J. J. S. n. sp.

Rhizoma breve, ramosum, radicibus tenuibus. *Caules* approximati, in sectione elongati, pauci-(c.5-)nodes, apice 2folii, c. 6—10 cm longi, initio nonnullis vaginis tubulosis obtusis apiculatis carinatis tecti. *Folia* anguste lanceolata, apice breviter carinato-apiculato-acuminata, apiculo lateraliter compresso, apice minutissime denticulata, basi sensim angustata conduplicatumque nervis 5 majoribus pluribusque minoribus sicco supra subtusque prominentibus, sicco rigide coriacea, c. 7—8.75 cm longa, 0.95—0.85 cm lata; vaginae compresso-tubulosae, c. 2—3 cm longae. *Inflorescentia* 1 inter folia, brevis, c. 4flora, pedunculo pluribus vaginulis alternatim bifariis imbricatis superne magis divergentibus amplis inferne tubulosis apiculato-acuminatis carinatis puncticulatis superioribus accrescentibus et in bracteas vergentibus ad c. 1.4 cm longis (bracteis) tecto. *Flores* mediocres, c. 2.6 cm longi; sepalis petalisque minute puncticulatis. *Sepalum dorsale* ovario continuum, oblongo-ovatum, acutum, longe lateraliter compresso subulato-acuminatum, 5nervium, costa media dorso prominente, c. 1 cm longum, 0.4 cm latum. *Sepala lateralalia* lacinia longissima oblique lineari ad pedem gynostemii decurrentia, mentum elongatum ovario parallelum incurvum anguste conicum obtusum leviter retusum c. 1.65 cm longum formantia, marginibus anticis basi longitudine c. 0.5 cm connata, oblique triangula, acuta, lateraliter compresso subulato-acuminata, marginibus apice incurvis, 5nervia, costa media dorso prominente, c. 1.1 cm, margine antico 2.5 cm longa, basi 1.8 cm lata. *Petala* oblique cuneato-oblongo-elliptica, longius acute apiculata, superne minute erosula, 3nervia, c. 0.875 cm longa, 0.325 cm lata. *Labellum* pedi gynostemii parallelum, eo basi longitudine c. 1 cm in formam calcaris adnatum, concavum, lineari-spathulatum, apice 3lobulum, 5nervium, totum explanatum c. 2.35 cm longum, ecallosum, ungue cuneato-lineari, bene 1 cm longo, parte antica libera oblonga, apicem versus paulum dilatata, basi breviter contracta, fere 1.35 cm longa, basi 0.25 cm, superne 0.5 cm lata, lobulis lateralibus rotundato-angulatis, minute erosulis, cum lobulo medio angulos obtusos facientibus, lobulo intermedio recto, bene longiore, triangulo, marginibus apice incurvus subulato, c. 0.27 cm longo, 0.16 cm lato. *Gynostemium* breve, latum, absque anthera bene 0.3 cm longum, clinandrio excavato, transverso, filamento satis conspicuo, subulato, arcuato, dorso transverse ruguloso, auriculis conspicuis, latis, angulatis, obtusis. *Anthera* cucullata, antice visa quinquangularis, apice leviter exciso-truncata papillosaque, dorso (basi) minute bilobula, c. 0.25 cm lata. *Stigma* subquadrangulum. *Pes gynostemii* ovario adpressus, incurvulus, linearis, c. 1.65 cm longus. *Ovarium* satis crassum, valde 5alatum, puncticulatum, c. 1.2 cm longum, cum pedicello c. 1.3 cm longo clavatum, sigmoideum. *Capsula* flore marcido coronata, fusiformis, 6alata, basi acuminata, c. 2.5 cm longa, pedicello sexalato-angulato, c. 1.75 cm longo.

Central Seran: Goenoeng Moerkele, 2000—2500 m, forest, limestone (L. RUTTEN n.1493, leg. KORNASI 1 July 1918; "flowers white, lip yellow").

Amongst the species of the section *Oxyglossum* this is one of the largest, the stems attaining a length of 6—10 cm. The ovary is five-winged, the mentum curved, the sepals and the rather broad petals apiculate, the lip a little broadened towards the tip and three-lobed with very short and blunt erose side-lobes and a triangular midlobe.

Description from a single dried specimen.

Dendrobium (sect. *Oxyglossum*) **seranicum** J.J.S. n.sp.

Pusillum. *Pseudobulbi* approximati, crasse ovoideo-fusifformes, c. 3 nodes internodio mediano maximo, c. 1.1—1.5 cm longi, 0.55—0.6 cm diam., 2—3 folii, nonnullis vaginis conspicuis tubulosis prominenter nervosis membranaceis tecti. *Folia* lanceolata, obtusa, obtuse apiculata, canaliculata cum lateribus praesertim versus marginem convexis, minutissime celluloso-crenulata, costa media dorso obtuse prominente, carnosae, c. 2.1—2.7 cm longa, 0.65—0.7 cm lata; vaginae basi tubuloso-ampliata pseudobulbum amplectentes, superne contractae et conduplicato-canaliculatae, prominenter nervosae, in nervis verrucosae. *Inflorescentiae* 1—2 inter folia, brevissimae, sessiles, 2 florae, nonnullis vaginulis basi tubulosis amplis triangulis breviter acuminatis dorso verrucosis ad basin. *Bractae* vaginulis similes sed paulo majores, c. 0.5 cm longae. *Flores* erecti, conspicui, c. 2.8 cm longi, 1.8 cm lati. *Sepalum dorsale* erectum, vix ovato-oblongum, apicem versus sensim angustatum, obtusum, dorso ad apicem breviter obtuse conico-apiculatum, 3 nervium, c. 1.1 cm longum, 0.34 cm latum. *Sepala lateralalia* lacinia longissima oblique lanceolato-triangula ad pedem gynostemii decurrentia, mentum elongatum deorsum spectans ovario adpressum angustum fere rectum apice longitudine c. 0.5 cm calcariforme obtusum plus minusve retusum c. 1.85 cm longum formantia, patentia, divergentia, oblique oblonga, longius acute acutata, acute conico-apiculata, 6 nervia, in utraque parte costae mediae supra canaliculatae leviter convexa, subtus praesertim versus apicem carinata, c. 1.15 cm, margine antico 2.65 cm longa, basi 2 cm, parte antica 0.525 cm lata. *Petala* erecto-patentia, leviter divergentia, oblique lanceolata, acuta, basin versus paululum angustata, apice minutissime papilloso-ciliolata, 3 nervia, c. 1.1 cm longa, 0.25—0.3 cm lata. *Labellum* pedi gynostemii parallelum, erectum, eo longitudine bene 1.1 cm in formam calcaris adnatum, gynostemium bene superans, superne leviter recurvulum, angustum, concavum, subtus convexum cum sulco longitudinali, apice 3 lobulum, ecallosum, carnosulum cum marginibus attenuatis, 5 nervium, inexplatum c. 2.4 cm longum, explanatum lineari-spathulatum, c. 2.6 cm longum, parte pedi gynostemii adnata lineari, bene 1.1 cm longa, apice 0.22 cm lata, parte libera leviter spathulata, c. 1.45 cm longa, superne bene 0.4 cm lata, lobulis lateralibus abbreviatis, rotundato-obtusangulis, margine antico minutissime erosulis, cum lobo intermedio angulos obtusos facientibus, lobulo intermedio bene longiore, erecto, leviter recurvulo (an semper?), triangulo, sensim angustato-acuminato, acuto, c. 0.275 cm longo, 0.2 cm lato. *Gynostemium* breve, latum, leviter a dorso compressum, obtuse 4 angulatum, supra

visum oblongo-quadrangulum, c. 0.4 cm longum, 0.275 cm latum, clinandrio transverso excavato, filamento incurvo, lineari-subulato, obtuso, auriculis angulis acutis a filamento sejunctis, latis, subquadrangulis, irregulariter repandulo-denticulatis. *Anthera* cucullata, antice plana, transverse sexangulata, apice late truncata, basi bilobula, c. 0.25 cm lata. *Pollinia* 4, in corpuscula 2 oblique obovata supra convexa subtus vix concava unita, c. 0.15 cm longa. *Stigma* subsemiovale, margine inferiore rotundatum, apice truncatum. *Pes gynostemii* ovario adpressus, vix incurvulus, linearis, canaliculatus, parte labello adnata apice excepto membrana obtecta fistulosus, glandula longitudinali lineari ad basin fistulae, bene 2 cm longus. *Ovarium* pedicellatum carnosum-quinquangulare-alatum cum costa inconspicua in facie inferiore, clavatum, c. 2.65 cm longum. *Capsula* clavata, 5alata.

Central Seran: Goenoeng Moerkele, 1000—1900 m, forest (L. RUTTEN n. 1449, leg. KORNASI 30 June 1918; "flowers dark violet, lip yellow").

The flowers of this and the foregoing species are nearly equally large. *D. seranicum* differs, however, in the much smaller dimensions of the vegetative parts, the narrower segments of the flower and the colour.

Description from herbarium and materials preserved in alcohol.

Dendrobium (sect. *Eudendrobium*) ***anosmum*** LNDL. in Bot. Reg. XXI (1844), Misc. 41; etc.

North Seran: Wahai, 0 m, cultivated (L. RUTTEN n. 184, leg. KORNASI 26 September 1917).

West Seran: Loki, 0—100 m, coast vegetation (L. RUTTEN n. 1200, leg. KORNASI 1 May 1918; "flowers light violet, lip dark violet").

South-east Seran: Werinama, 0 m, coast-road (L. RUTTEN n. 803, leg. KORNASI 14 January 1918).

South Seran: Laimoe, 0 m, forest (L. RUTTEN n. 659, leg. KORNASI 6 December 1917). Wai Pia, 0—100 m, forest (L. RUTTEN n. 2086, 16 February 1919; "flowers violet-red").

Dendrobium (sect. *Pedilonum*) ***purpureum*** RXB. Fl. Ind. ed. 2. III (1832), 484; etc.

North Seran: Wai Moeal, c. 200 m, forest (L. RUTTEN n. 157, 20 September 1917; "flowers red").

South Seran: Hatoemeten, 0 m, beach (L. RUTTEN n. 652, leg. KORNASI 4 December 1917).

Dendrobium (sect. *Calcarifera*) ***lancifolium*** A. RICH. Sert. Astrol. (1834), 20, t. 8; etc.

Am bon: Wai Batoe Gantoeng, bank vegetation, 0—100 m (L. RUTTEN n. 1129, leg. KORNASI 11 April 1918; "flowers white, lip light violet"). Batoe Gantoeng (L. RUTTEN without number, leg. KORNASI 13 July 1918; "flowers light red").

South Seran: Wai Kaba, 100 m, forest, bank vegetation (L. RUTTEN n. 347, 17 October 1917).

Dendrobium (sect. *Calyptrochilus*) **aphanochilum** KRZL. in Pflanzenr. IV. 50. II. B. 21 (1910), 110.

Caules elongati, basi incrassati, 35 cm superantes, internodiis ad c. 2.75 cm longis, superioribus decrescentibus. *Folia* patentissima, ovato-lanceolata, apicem versus sensim angustata vel leviter acuminata, longe inaequaliter vel subaequaliter anguste acute bidentata, basi obtusa vix contracta, nervis majoribus c. 5 pluribusque tenuibus sicco supra subtusque prominentibus, sicco rigide papyracea, c. 6.5—8 cm longa, 1—1.6 cm lato; vaginae tubulosae, apice truncatae. *Inflorescentiae* e nodis caulium defoliorum, sessiles, brevissimae, pauciflorae. *Bractee* conspicuae, patentissimae, imbricantes, latissimae, subsemiorbiculares, concavae, c. 11 nerviae, membranaceae, ad c. 0.425 cm longae, 0.77 cm latae, superiores angustiores. *Flores* c. 5—6, mediocres, macerati c. 3.4 cm longi. *Sepalum dorsale* erectum, oblongum, apice angustatum, acutiusculum, 5nervium, c. 1.2 cm longum, 0.55 cm latum. *Sepala lateral* lacinia elongata oblique anguste triangula concava ad pedem gynostemii decurrentia, marginibus anticis longitudine 1.65 cm connata, mentum conspicuum ovario pedicellato parallelum curvulum anguste conicum anguste obtusum c. 2.1 cm longum formantia, parte antica oblique subovato-triangula, margine postico curvata, obtusa, subapiculata, 7nervia, c. 1 cm longa, margine antico 2.5 cm, basi 1.8 cm metientia. *Petala* oblique oblongo-elliptica, basi leviter subspathulato-angustata, obtusa, apice erosula, concava, 3nervia, c. 1.1 cm longa, 0.43 cm lata. *Labellum* parvum, erectum, pede gynostemii bene brevius et eo longitudine 0.85 cm adnatum, anguste cuneato-spathulatum, canaliculato-concavum, margine apicali c. 0.3 cm lato cucullato-inflexum serrulatumque, intus nudum, 7nervium, explanatum c. 1.86 cm longum, apice 0.6 cm latum. *Gynostemium* breve, crassum, a dorso compressum, margine utrinque obtusangule dilatatum, cum anthera c. 0.23 cm longum, 0.325 cm latum, clinandrio transverso excavato, filamento longo, incurvulo, subulato, auriculas subsuperante, auriculis conspicuis, porrectis, subrecurvulis, obtusis. *Anthera* cucullata, antice visa angulato-semiorbicularis, apice paulum rotundato-angustato incurvula truncataque, c. 0.26 cm lata. *Pollinia* 4, oblique oblonga, in corpuscula 2 oblique ovalia vix obovata supra convexa subtus leviter concava unita, c. 0.175 cm longa, *Stigma* subsemiorbiculare, margine inferiore rotundatum cum callis 2 parvis rotundatis. *Pes gynostemii* ovario adpressus, leviter incurvulus, linearis, canaliculatus, c. 2.1 cm longus. *Ovarium* 6sulcatum, c. 1 cm longum, cum pedicello 2 cm longo clavatum.

Ambon: Without locality (O. BECCARI). Goenoeng Salhoetoe, c. 800 m, common (C. J. BROOKS n. 18127, November 1923).

Central Seran: Source mountains of the Makino, 1000—1100 m, forest (L. RUTTEN n.2241, 18 May 1919; "epiphytical, flowers white").

Hatoemeten-pass, south of Manoesela, 1500—1700 m, forest, limestone mountains (L. RUTTEN n.599, leg. KORNASI 29 November 1917, "flowers yellow, lip red").

I have given an emendatory description after the specimen collected by Mr C. J. BROOKS in Ambon, whence also the type specimen originated.

The flowers of the Seran material are somewhat smaller.

The annotation regarding the colour of n.599 is probably incorrect.

Description from herbarium.

Dendrobium (sect. *Calyptrochilus*) **woluense** J. J. S. n.sp.

Caules approximati, elongati, deinde ramosi, superne flexuosi, ad c. 60 cm longi, internodiis ad c. 3 cm longis, superioribus decrescentibus. *Folia* patentia, ovato-lanceolata, apicem versus sensim angustata vel leviter acuminata, breviter acuta, praesertim superne inferne parciissime minute serrulata, nervis 5 majoribus pluribusque minoribus sicco supra subtusque prominentibus, pallidisque, sicco rigidule papyracea, in caule primario ad c. 5.7 cm longa, 1.4 cm lata, superiora decrescentia, c. 2 cm longa, 0.43 cm lata et magis patentia; vaginae tubulosae, internodia paulum superantes, sicco prominenter nervosae et in nervis praesertim versus apicem minute verruculosae, obscurius punctatae. *Inflorescentiae* e nodis caulium defoliorum, brevissimae, pauciflorae, pedunculo c. 0.5 cm longo, vaginulis ample tubulosis latis superne accrescentibus et in bracteis vergentibus omnino oblecto. *Flores* c. 3, macerati c. 2.9 cm longi. *Sepalum dorsale* erectum, ovali-ellipticum, obtusum, 5nervium, c. 1.2 cm longum, 0.65 cm latum. *Sepala lateral* longe ad pedem gynostemii decurrentia, mentum conspicuum ovario adpressum apice leviter incurvulum conicum anguste obtusum c. 1.7 cm longum formantia, marginibus anticis longitudine c. 0.57 cm longis connata, oblique triangula, margine postico rotundata, obtusa, 5nervia, c. 1.25 cm, margine antico 2.35 cm longa, basi 1.85 cm lata. *Petala* oblique oblongo-elliptica, obtusa, superne leviter erosula, 3nervia, bene 1.1 cm longa, 0.45–0.5 cm lata. *Labellum* pedi gynostemii alte adnatum, gynostemium superans, recurvum, concavum, ecallosum, 5nervium, nervis exterioribus valde ramosis, margine apicali subrectangule cucullato-incurvum, margine apicali truncatum et laciniis numerosis angustis longiusculis fimbriatum, inexplanatum c. 2.2 cm, usque ad apicem cucullae 1.8 cm longum, longitudine 1.37 cm pedi gynostemii in formam calcaris adnatum, explanatum late spathulatum, c. 1.8 cm longum, ungue canaliculato, apice cuneato-dilatato, cuculla (parte libere) dilatata, obtusangula, c. 1.2 cm lata, margine inflexo c. 0.53 cm longo. *Gynostemium* crassum, marginibus infra medium obtusangule dilatatis, absque anthera c. 0.28 cm longum, clinandrio transverso, excavato, margine utrinque dentibus 2 triangulis acute acuminatis satis conspicuis donato, filamento arcuato subulato, auriculis satis conspicuis obtusis. *Pes gynostemii* elongatus, ovario parallelus, incurvulus, linearis, canaliculatus, c. 1.65 cm longus. *Ovarium* 6sulcatum, c. 0.8 cm longum, cum pedicello c. 2.65 cm longum,

clavatum, leviter sigmoideum. *Capsula* immatura fusiformis, c. 1.9 cm longa, pedicello 1.3—1.6 cm longo.

South Seran: Goenoeng Woloe, 1700—2000 m, on the summit, forest, limestone mountains (L. RUTTEN n. 709, leg. KORNASI 14 December 1917, "flowers red, lip white").

The colour of the flowers, if correctly noted, distinguishes this plant at once from the other species of the section. The only species resembling it more or less in this respect is, as far as I am aware, *D. macrogenium* SCHLTR. from New Guinea, the lip of which has been described by the author as whitish with violet veins. In this species, however, the lip shows *i.a.* a transverse thickening which is lacking in *D. woluense*.

The new species belongs to the set with the lip surpassing the column a little in length, much broadened in the upper part when laid out, and adnate to the column foot for the greater part.

Description from a single dry specimen.

BULBOPHYLLUM THOU.

Bulbophyllum (sect. *Micromonanthae*) **murkelense** J.J.S. n.sp.

Rhizoma repens, partes adsunt 2—5 cm longae, vaginis majusculis, radicibus tenuibus. *Pseudobulbi* approximati, cum rhizomate angulos acutos facientes, subovoidei, sicco valde quadranguli, c. 1—1.4 cm longi, vagina tubulosa breviter acuminata carinata c. 0.9—1.1 cm longa ad basin. *Folium* lineari-lanceolatum, obtusum, apiculatum, basi sensim angustatum canaliculatumque, costa media dorso prominente, sicco rigidum, c. 7—11 cm longum, 0.85—1.1 cm latum. *Inflorescentiae* e nodis rhizomatis, fasciculatae, 1florae, pedunculo c. 0.675—0.7 cm longo, nonnullis vaginulis tubulosis apiculatis carinatis ad c. 0.35 cm longis ad basin. *Bractea* oblique infundibuliformis, oblique truncata, apiculata, carinata, c. 0.275 cm longa. *Flos* c. 0.7 cm longus, sepalis conniventibus, carnosulis. *Sepalum dorsale* oblongum, marginibus apice incurvis, obtusum, breviter conico-apiculatum, nervis 3 dorso prominulis, c. 0.77 cm longum, 0.275 cm latum. *Sepala lateral*ia oblique oblonga, vix falcatae sursum curvula, marginibus superne incurvulis, acute conico-apiculata, concava, nervis 3 dorso prominentibus, bene 0.8 cm longa, 0.275 cm lata. *Petala* parva, porrecta, gynostemio adpressa, verticalia, oblonga, obtusissima, marginibus parallelis, nervo 1 dorso prominente apice gibboso-incrassata, tenuia, c. 0.2 cm longa, fere 0.1 cm lata. *Labellum* parvum, mobile, e basi erecta valde recurvum, gynostemium aequans, superne 3lobulum, marginibus erectis valde rotundatis antice in lobulum brevissimum dentiformem porrectum obtusum terminantibus valde canaliculatum, costulis 2 longitudinalibus inconspicuis inter lobulos laterales, subtus convexum cum sulco longitudinali et basi excepta grosse papillosum, inexplanatum fere 0.1 cm longum, bene 0.1 cm altum, lobo intermedio lateralibus bene longiore, recurvo, ovali, rotundato, basi lato, convexo. *Gynostemium* totum c. 0.175 cm longum, clinandrio concavo, margine

dorsali breviter producto lato, auriculis porrectis, parallelis, elongatis, subulatis, fere rectis, antheram longe superantibus. *Anthera* cucullata, ovata, obtusa, connectivo longitudinaliter convexo-incrassato cum costula longitudinali utrinque, bene 0.05 cm longa. *Pollinia* 4, exteriora a latere visa semiobovata, extus convexa, intus plana, fere 0.05 cm longa, interiora multo minora et tenuiora. *Stigma* longitudinale, oblongum. *Pes gynostemii* cum ovario angulum obtusum faciens, incurvulus, c. $\frac{2}{5}$ partibus superioribus a sepalis lateralibus liber, oblongus, subtus convexus, apice truncato utrinque in lobulum patentem obtusum dilatatus, c. 0.15 cm longus. *Ovarium* breviter obconicum, 6sulcatum, c. 0.1 cm longum; pedicellus c. 0.6 cm longus, 0.2 cm supra basin articulatus.

Central Seran: Goenoeng Moerkele, 1000—1900 m, forest (L. RUTTEN n. 1468, leg. KORNASI 30 June 1918, "flowers violet, lip yellow").

This is one of those small *Bulbophylla* which for the present are best placed in the polymorphous section *Micromonanthæ*. It is *i. a.* well characterized by the shape of the petals and lip.

Description from herbarium.

Bulbophyllum (sect. *Oxysepalum*) **Teysmannii** J. J. S. Orch. Amb. (1905), 79.

Ambon: Goenoeng Batoe Gantoeng, 0—200 m, brambles (L. RUTTEN n. 1088, leg. KORNASI 3 April 1918).

Bulbophyllum (sect. *Pelma*) **bacilliferum** J. J. S. n. sp.

Rhizoma elongatum, dependens, ramosum, c. 75 cm longum, vaginis conspicuis tubulosis apice triangulo-productis acutis acuminatisve sicco tenuiter prominenter (praesertim costa media) nervosis stramineis imbricantibus ad c. 0.275 cm longis tectum, basi radicans, radicibus superioribus rhizomati adpressis, omnibus crassiusculis. *Pseudobulbi* parvi, c. 2—4 cm remoti, rhizomati adpressi, apice recurvi, sicco subteretes, c. 2—2.75 cm longi vel minores. *Folium* oblongo-ovatum, acutatum vel subacuminatum, acutum vel anguste obtusum, apiculatum, basi obtusa rotundatave abrupte in petiolum contractum, in utraque parte costae mediae supra sulcatae subtus prominentis nervis 5 majoribus tenuibus intermixtis sicco supra subtusque prominentibus, reticulato-venosum, sicco coriaceo-papyraceum, fragile, c. 5.25—7 cm longum, 1.85—2.5 cm latum; petiolus conduplicato-canaliculatus, c. 0.375—0.45 cm longus. *Inflorescentiae* e nodis rhizomatis, numerosae, fasciculatae, racemosae, laxae pauciflorae, pedunculo tenui, c. 0.5—1.4 cm longo, nonnullis vaginulis tubulosis donato, rachide flexuosa, angulata, c. 1.1—2.4 cm longa, internodiis c. 0.4—0.6 cm longis. *Bracteae* oblique infundibuliformes, triangulo-productae, erecto-patentes, acutae, concavae, c. 0.3 cm longae. *Flores* c. 3—5, in sectione parvuli, pulvino in axilla bracteae inserti, c. 0.56 cm longi, sepalis petalisque subparallelis. *Sepalum dorsale* horizontale, oblongum, obtusum, breviter obtuse apiculatum, concavum,

1nervium, costa dorso convexo-incrassata, fere 0.5 cm longum, 0.2 cm latum. *Sepala lateral*ia divergentia, vix mentum leviter rotundatum formantia, oblique oblonga, inexplanata apice conduplicato-acuta, explanata obtusa, obtuse apiculata, concava, 1nervia, dorso obtuse carinata, c. 0.5 cm longa, 0.16 cm lata. *Petala* porrecta, parallela, oblique subspathulato-oblonga, brevissime acute apiculo-acuminata, concava, 1nervia, sepalis tenuiora, c. 0.4 cm longa, 0.4 cm lata. *Labellum* mobile, membrana tenui infra apicem pedis gynostemii abrupte incurvum insertum, porrectum, oblongo-ligulatum, in $\frac{3}{5}$ partibus supra basin obtusangule recurvum, apice rotundatum, basi brevissime cuneato-obtusum, supra basin utrinque leviter rotundatum, 3nervium, bene dimidio inferiore canaliculatum, subtus convexum, callis 2 erectis longitudinalibus triangulis intus supra basin, parte superiore supra subtusque convexum, carnosum, c. 0.34 cm longum, 0.1 cm latum. *Gynostemium* cum ovario angulum obtusum faciens, breve, dorso longitudinaliter costatum, cum anthera c. 0.125 cm longum, clinandrii pariete postico more *Phalaenopsis* conspicue producto triangulo tridenticulato, intus ad basin bacillum deflexum rectum apice paululum incrassatum stigma subtegens gerente, auriculis dentiformibus triangulis acutis. *Anthera* cucullata, leviter lateraliter compresso-subglobosa, minutissime verruculosa, c. 0.075 cm longa. *Pollinia* 4, oblique obovata, exteriora extus convexa, interiora multo tenuiora. *Stigma* majusculum, anticum, suborbiculare. *Pes gynostemii* cum ovario angulum obtusum faciens, valde incurvus, porrectus, brevis, latiusculus, quadrangulus, apice breviter libero obtuso rectangule incurvus, fere 0.1 cm longus. *Ovarium* oblongo-obconicum, 6sulcatum, c. 0.15 cm longum; pedicellus tenuior, brevis, c. 0.04 cm longus.

Central Seran: Source mountains of the Makina, 1000—1100 m, forest, epiphytical (L. RUTTEN n.2239, 18 May 1919, "flowers white").

In the shape of the flowers this approaches *B. oliganthum* SCHLTR. from New Guinea but that species is a much smaller plant with 1—2flowered inflorescences, much smaller flowers, a broader lip, etc.

B. bacilliferum is an interesting plant on account of the curious appendage below the tip of the column. With the available material it was, however, not possible to find out the meaning of it, nor to point out whether it is a normal characteristic or not.

Description from a dried specimen.

Bulbophyllum (sect. *Dialeipanth*e) **amplebracteatum** T. et B. in Nat. Tijdschr. Ned.Ind. XXIV (1863), 307; J. J. S. Orch.Amb.(1905), 114.

North Seran: Waihai (L. RUTTEN, leg. KORNASI liv. pl. February 1918, cult. in Hort.Bog. sub n.153).

Bulbophyllum (sect. *Hyalosema*) **grandiflorum** BL. Rumphia IV (1850) 42, t.195, f.3; etc.

South-east Seran: Werinama, 0 m, coast way (L. RUTTEN n.804, leg. KORNASI 14 January 1918).

This interesting species has now been collected in New Guinea, Schouten Islands, Seran, Ambon, Selebes and Southern Sumatra.

Bulbophyllum (sect. *Stenochilus*) **Hahlianum** SCHLTR. in SCHUM. et LAUT. Nachtr.Fl.D.Schutzgeb.Südsee (1905), 204; etc.

North Seran: Kali Koea (L. RUTTEN, leg. KORNASI, liv. pl. cult. in Hort.Bog.sub n.62).

EULOPHIA R. BR.

Eulophia squalida LNDL. Bot.Reg.XXVII (1841), Misc. 77; etc.

North Seran: South of Seliha, forest (L. RUTTEN n.260, 7 October 1917, "flowers red"). East of Wahai, Pasahari, 0 m, forest (L. RUTTEN n.745, leg. KORNASI 18 December 1917, "flowers white, lip yellow").

GEODORUM JACKS.

Geodorum purpureum R. BR. in AIT. Hort. Kew. ed. 2, V (1813), 207; etc.

West Seran: Piroe, 0—300 m, forest (L. RUTTEN n.2277, April 1919, "flowers white").

North Seran: Telaga Gajang near Wahai, 0 m, forest behind the shore (L. RUTTEN n.447, leg. KORNASI 10 November 1917, "flowers light blue").

GRAMMATOPHYLLUM BL.

Grammatophyllum (sect. *Pattonia*) **papuanum** J. J. S. in Bull. Dép. Agric. Ind. Néerl. XLV (1911), 11; in Nova Guinea VIII (1911), 596, t. CVII; SCHLTR. in Orchis XIII (1919), 54, Abb. 8-9.

Central Seran: Goenoeng Loemoetoe, northern slope, 0—200 m, forest, epiphytical (L. RUTTEN n.2039, 16 February 1919, "flowers green with violet-brown specks").

In Orchis IX (1915), 101 SCHLECHTER reduced this plant as a synonym to *G. pantherinum* RCHB. F. In Orchis XIII (1919), 54, however, he keeps it upright, probably not being quite sure of his identification. I have not seen REICHENBACH's species and his description is not adequate enough to get certainty.

Grammatophyllum (sect. *Gabertia*) **scriptum** BL. Mus. I, (1849), 47; etc.

North-west Seran: Between Noemiala and Sanimala, 0 m, coast vegetation (L. RUTTEN n.1780, 10—13 October 1918).

North Seran: Wahai, Telaga, seashore, abundant (L. RUTTEN n.210, leg. KORNASI 11 October 1917).

South Seran: Wai Lau near Laimoe, 0—100 m, river (L. RUTTEN n.695, leg. KORNASI 11 December 1917).

PHREATIA LNDL.

Phreatia (sect. *Caulophreatia*) **semiorbicularis** J. J. S. in Bull. Dép. Agric. Ind. Néerl. XXXIX (1910), 19; in Nova Guinea VIII (1911), 599, t. CIX A; KRZL. in Pflanzenr. IV.50.II.B.23(1911), 12.

var. **seranica** J. J. S. n.var.

Caules elongati, diu adolescentes, saepissime curvati, simplices vel injuria ramosi, subteretes, ad c. 35 cm longi, apice 5—10 folii, basi valde radicanter, radicibus superioribus sub vaginis cauli adpressis, internodiis c. 0.9—1.1 cm longis, 0.3 cm diam. *Folia* erecto-patentia, linearia, apicem versus paululum angustata, suboblique obtuse vel obtusiuscule bidentata, brevissime obtuse apiculata, basi conduplicata, minutissime superne distinctius erosula, supra in utraque parte costae mediae canaliculatae convexa, subtus carinata, c. 5—7 cm longa, 0.625—0.875 cm lata; vaginae internodia superantes, basi tubulosae, sectione transversa ellipticae, superne conduplicatae et manifeste undulatae, transverse rugosae, dorso carinatae, fere 0.5 cm latae. *Inflorescentiae* axillares, folia multo superantes, secundae, laxius multiflorae, pedunculo c. 5.5—6 cm longo, pluribus vaginulis adpressis tubulosis membranaceis in bracteas vergentibus donato, rachide conspicue interrupte obtuse costata, c. 10—13 cm longa. *Bracteae* e basi latiore sensim subulato-acuminatae, concavae, 1nerviae, ad c. 0.45 cm longae, 0.14 cm latae. *Flores* patentis, c. 0.26—0.275 cm lati. *Sepalum dorsale* plus minusve recurvum, convexum, triangulum, acutum, 1nervium, c. 0.2 cm longum, bene 0.1 cm latum. *Sepala lateralialia* patentissima, angulum obtusum facientia, apice recurva, oblique triangula, subfalcata, acuta, apiculata, apice canaliculata et dorso carinata, 1nervia, fere 0.2 cm longa, bene 0.1 cm lata. *Petala* patentissima, apice recurva, convexa, oblique subovato-oblonga, subfalcata, acutata, acuta, 1nervia, c. 0.14 cm longa, 0.06 cm lata. *Labellum* pedi gynostemii insertum, porrectum, apice recurvum canaliculatumque, brevissime lateque unguiculatum, abrupte in laminam triangulam subquinquangularem acutam vix acuminatam angulis basilaribus obtusam dilatatum, glabrum, 3nervium, glandulis 2 ad basin laminae, totum c. 0.15 cm longum, ungue c. 0.025 cm longo, bene 0.05 cm lato, lamina 0.125—0.13 cm longa, 0.14 cm lata. *Gynostemium* brevissimum, crassum, absque anthera c. 0.06 cm longum, clinandrio concavo, sub-semiorbiculari, margine incurvo, pedi brevissimo. *Anthera* plano-cucullata, transverse ovali-reniformis, apice leviter retusa, bene 0.05 cm lata. *Rostellum* porrectum, latum, aequilateraliter subtrapeziforme, truncatum, minutissime approximato-bidentatum. *Stigma* transversum, latum, semilunatum, margine inferiore curvatum. *Ovarium* crassiusculum, teres, c. 0.15 cm longum, pedicellus vix tenuior, bene 0.05 cm longus.

Central Seran: Goenoeng Moerkele, 2000—2500 m, forest, limestone rocks, abundant (L. RUTTEN n.1478, leg. KORNASI 1 July 1918, "flowers yellow, lip white").

The variety proposed here is much like the var. *angiensis* J. J. S. from New Guinea. It differs, however, in the somewhat broader leaves, longer peduncle, a little longer flowers with the dorsal sepal triangular and not acuminate. It is not excluded that later on it shall prove necessary to look upon these two varieties as different species.

Description from herbarium and materials preserved in alcohol.

Phreatia (sect. *Caulophreatia*) **navicularis** J. J. S. n.sp.

Caules elongati, diu adolescentes, curvati, raro stricti, simplices, c. 14—23 cm longi, superne foliati, praesertim basi radicales, internodiis c. 0.75—1 cm longis. *Folia* patentia, linearia, saepe oblique obtusa plus minusve retusa cum apiculo brevi crasso apicali, basi angustata conduplicataque, integerrima, supra in utraque parte canaliculae longitudinalis convexa, subtus carinata, sicco rigide coriacea, c. 2.3—5.1 cm longa, 0.65—0.73 cm lata; vaginae internodia multo superantes, basi tubulosae, superne conduplicatae et membranaceo-marginatae, apice basi laminae latiores, sicco longitudinaliter prominenter nervosae, rugulosae, superne leviter undulatae. *Inflorescentiae* axillares, foliis multo longiores, laxae satis multiflorae, pedunculo tenui, plerumque laxae serpentinae, basi vagina folii incluso, c. 3.5—6.5 cm longo, vaginulis c. 4—5 tubulosis membranaceis acutis superioribus in bracteis vergentibus ad c. 0.7—0.9 cm longis donato, rachide conspicue interrupte 3costata, c. 4.5—7 cm longa. *Bracteae* adpressae, deinde plus minusve reflexae, marginibus inferne incurvis, ellipticae ad rhombeae, acutatae vel subacuminatae, anguste obtusae vel acutiusculae, concavae, nervo 1 dorso prominulo, ad c. 0.425 cm longae, bene 0.2 cm latae. *Flores* c. 21—30, patentes, c. 0.36 cm longi. *Sepalum dorsale* valde recurvum, convexum, ovato-oblongum, obtusum, 1nervium, c. 0.22 cm longum, 0.12 cm latum. *Sepala lateralalia* oblique porrecta, divergentia, angulum subrectum facientia, oblique ovata, apicem versus angustata, obtusa, concava, nervo 1 dorso versus apicem obtuse incrassato, bene 0.2 cm longa, 0.16 cm lata. *Petala* sepalis lateralibus subparallela, porrecta, paululum decurva, divergentia, oblique ovata, obtusa, basi brevissime oblique contracta, concava, 1nervia, c. 0.2 cm longa, bene 0.1 cm lata. *Labellum* porrectum, valde concavum, subtus convexum, a latere visum sigmoideum, explanatum ex ungue brevi obverse aequilaterialiter trapeziformi glandulis 2 magnis instructa abrupte in laminam aequilaterialiter trapeziformem cum ungue utrinque angulum obtusum facientem apice truncatum cum lobulo parvo transverso truncato leviter retuso (inexplanato conduplicato) ad apicem angulis basilaribus obtusam apice utrinque rotundato-obtusae angulatam dilatatum, glabrum, 3nervium, totum fere 0.2 cm longum, ungue 0.05 cm longo, bene 0.1 cm lato, lamina 0.14 cm longa bene 0.2 cm lata. *Gynostemium* brevissimum, dorso convexum, c. 0.06 cm longum, clinandrio alte excavato, orbiculari-triangulo; pede subnullo. *Anthera* cucullata, breviter late cordata, obtusa, 0.07 cm lata. *Pollinia* 8. *Rostellum* brevissimum, bidentatum. *Stigma* transverse

fissuriforme. *Ovarium* obconicum, c. 0.175 cm longum, cum pedicello tenuiore 0.12 cm longo clavatum.

Central Seran: Goenoeng Moerkele, 2000–2500 m, forest, limestone rocks (L. RUTTEN n.1479, leg. KORNASI 1 July 1918, "flowers white").

Near *Ph. rupestris* J.J.S. from New Guinea, but the leaves are longer and broader, the sheaths less undulate, the bracts elliptic, the flowers larger with an equilateral trapeziform lip with a broad retuse lobule at the tip and manifestly larger glands. It is to be noted, however, that the type of *Ph. rupestris* consists only of a small branchlet with one inflorescence preserved in alcohol.

Description from herbarium. The flowers preserved in alcohol under this number belong to n. 1478, *Ph. semiorbicularis* J.J.S. var. *seranica* J.J.S.

Phreatia (sect. *Rhizophyllum*)? **potamophila** SCHLTR. in FEDDE Rep. X(1911), 187; XXI(1925), 191.

North Seran: Pasir Poetih, 0 m, on a tree near the dunes, abundant (L. RUTTEN n.193, leg. KORNASI 5 October 1917).

The determination is somewhat doubtful as I did not see a type specimen; moreover the material nearly lacks flowers.

Phreatia (sect. *Rhizophyllum*) **seranica** J.J.S. n.sp.

Caules breves, basi ramosi, diu adolescentes, ad c. 4 cm longi, basi valde radicanter, internodiis brevissimis. *Folia* c. 3–6 simultanee adsunt, patentia, plus minusve recurvula, linearia, oblique bidentata vel bilobula cum apiculo crasso interposito, basi canaliculata, sicco tenuiter rigide coriacea, c. 2–5.25 cm longa, 0.175–0.375 cm lata, macerata carnosula, c. 5.75 cm longa, 0.45 cm lata; vaginae tubulosae, imbricatae, antice rumpentes, apice canaliculatae, basi dilatatae, sicco prominenter nervosae, c. 0.25–1.3 cm longae. *Inflorescentiae* axillares, plerumque folia longe superantes, subaxe multiflorae, pedunculo c. 0.85–4 cm longo, nonnullis vaginulis basi tubulosis acuminatis ad c. 0.27–0.7 cm longis donato, rachide interrupte c. 4costata sulcataque glabra, c. 1.9–6 cm longa. *Bractae* adpressae, triangulae, acutae vel acuminatae, concavae, ad c. 0.23 cm longae. *Flores* parvi, incurvi, rachidem subadpressi, c. 0.1 cm lati. *Sepalum dorsale* ovatum, obtusum, 1nervium, c. 0.08 cm longum, 0.06 cm latum. *Sepala lateral*ia mentum breve latum rotundatum cum ovario angulum acutum faciens, late oblique ovato-triangulari, triangulo-acuminata, acuta, concava, 1nervia, fere 0.1 cm longa, 0.08 cm lata. *Petala* oblique rhombea, obtusa, 1nervia, c. 0.06 cm longa, 0.04 cm lata. *Labellum* incurvum, concavum, spathulatum, subtus convexum, 3nervium, verisimiliter glabrum, explanatum totum fere 0.1 cm longum, ungue valde concavo, quadrangulo, fere 0.05 cm longo, 0.05 cm lato, lamina cum ungue angulos obtusos faciente, subtriangulo-semiorbiculari, obtusa, angulis basilaribus obtusis, margine irregulari, fere 0.05 cm longo, 0.075 cm lato. *Gynostemium* brevissimum, dorso convexum, apice recurvum, c. 0.04 cm longum, clinandrio

alte excavato, suborbiculari, abrupte apiculato, pede reverso, cum ovario angulum acutum faciente, c. 0.02 cm longo. *Anthera* cucullata, quinquangularis, apice obtusangula, c. 0.025 cm lata. *Pollinia* 8, breviter obovoidea. *Rostellum* porrectum, acute bidentatum. *Stigma* in fissura transversa in facie inferiore gynostemii, semiorbiculare. *Ovarium* crasse subovale, basi abrupte in pedicellum brevissimum contractum, fere 0.1 cm longum.

Central Seran: Manoesela, 700 m, forest (L. RUTTEN n.1430, leg. KORNASI 27 June 1918, "flowers white").

As to the shape of the flowers, especially of the lip, this resembles *Ph. breviscapa* J. J. S. from New Guinea, but in that species the leaves are thicker and petiolate, and the inflorescences shorter than the leaves.

Description from herbarium.

Phreatia (sect. *Rhizophyllum*) **latipetala** J. J. S. n. sp.

Caulis brevis, basi ramosus, apice diu adolescens, paucifolius, basi valde radicans, c. 2.5 cm longus. *Folia* erecto-patentia, linearia, apice oblique obtuse 2loba et subirregulariter marginata, valde acutangule canaliculata subtus convexa, c. 5.3–7.3 cm longa, 0.225–0.325 cm, explanata 0.43–0.675 cm lata; vaginae internodiis longiores, apice excepto tubulosae, apice truncatae, margine leviter undulatae, prominenter longitudinaliter nervosae et transverse ruguloso-verruculosae, apice quam basin laminae latiores. *Inflorescentiae* axillares, folia bene superantes, subdense multiflorae, secundae, pedunculo 5.7–6 cm longo, vaginulis c. 5 ultima excepta tubulosis apicem versus leviter ampliatis acutis carinatis in bracteas transientibus ad c. 0.8 cm longis donato, rachide longitudinaliter interrupte pluricostata, c. 6–7 cm longa. *Bracteae* adpressae, pedicellos amplexantes, e basi brevissime contracta ovato-triangularae, acutae, late membranaceo-marginatae, 1nerviae, ad c. 0.37 cm longae, 0.26 cm latae, superiores minores. *Flores* parvi, subpatentissimi, oblique incurvi, c. 0.225 cm lati. *Sepalum dorsale* ovatum, obtusum, 1nervium, c. 0.125 cm longum, 0.1 cm latum. *Sepala lateral*ia cum pede gynostemii mentum satis conspicuum reversum ovario adpressum obtusum c. 0.6 cm longum formantia, lacinia triangula ad pedem gynostemii decurrentia, oblique ovato-triangulara, subobtusa, minute acute apiculata, concava, 1nervia, c. 0.125 cm, margine antico 0.175 cm longa, 0.125 cm lata. *Petala* e basi brevissime unguiculata in laminam oblique angulato-orbicularem abrupte dilatata, obtusissima, 1nervia, c. 0.1 cm longa et fere aequilata. *Labellum* basi cum pede gynostemii brevissime rotundato-sacculatum, porrectum, superne recurvum, unguiculatum, 3nervium, ut videtur glandulis 2 parvis ad basin, explanatum totum c. 0.14 cm longum, ungue concavo, rotundato-quadrangulo, cum lamina angulos acutos faciente, c. 0.06 cm longo latoque, lamina abrupte dilatata, canaliculata cum lateribus convexis, aequilateraliter trapeziformi-semiorbiculari, basi truncata cum angulis rotundato-obtusis, apice truncata vel levissime retusa interdum minute apiculata, intus brevissime subobsolete papillosa, c. 0.08 cm longa, 0.125 cm lata. *Gynostemium* brevissimum, dorso

convexum, c. 0.06 cm longum, clinandrio excavato, transverse ovali, pariete postico trilobulato, lobulo dorsali transverse quadrangulo truncato sinibus angustis a lobulis lateralibus sejuncto, pede ovario adpresso, c. 0.04 cm longo. *Anthera* cucullata, subquingulari-reniformis, apice obtusangula, lobulis basilaribus retusis, bene 0.05 cm lata. *Pollinia* 8, oblique globosa ad obovoidea. *Rostellum* porrectum, bipartitum, dentibus acutis. *Stigma* transversum, anguste oblongum, margine inferiore rotundatum. *Ovarium* crassiusculum, teres, apice obliquum, c. 0.15 cm longum; pedicellus tenuior, 0.05 cm longus.

Seran: (L. RUTTEN, without label).

Central Seran: Manoesele, 700 m, forest (L. RUTTEN, mixed with n.1430, leg. KORNASI 27 June 1918).

In habit this is much like the preceding species but in the characteristics of the flowers it is quite distinct. In a dried state it shows a darker colour.

Description from materials preserved in alcohol. It seems rather probable, that this material was collected on the same spot as n.1430 and that accidentally a portion of the single specimen of *Ph. latipetala* has been put in alcohol.

Phreatia (sect. *Bulbophreatia*)? **sulcata** J. J. S. in Fl. Buit. VI (1905), 505; Atl. Fig. CCCLXXXIII; etc.

Central Seran: Hatoemeten-pass, south of Manoesele, 1500—1700 m, forest, limestone mountains (L. RUTTEN n. 625, leg. KORNASI 29 November 1917, "flowers white").

The determination is not quite certain, the material at hand consisting only in a small portion of the plant with an inflorescence in young fruit.

ACRIOPSIS REINW.

Acriopsis javanica REINW. Flora Litt. II (1825), 4; etc.

West Seran: North of Melilia, 550—750 m, forest (L. RUTTEN n. 1639, 4 September 1918).

North-west Seran: Wai Beka, 0—100 m, forest, bank vegetation (L. RUTTEN n.1762, 7 October 1918).

Central Seran: Kampong Hatoeolo, 600 m, forest (L. RUTTEN n.1548, leg. KORNASI 5 July 1918).

THRIXSPERMUM LOUR.

Thrixspermum (sect. *Orsidice*) **clavilobum** J. J. S. n. sp.

Caulis elongatus, scandens, radicans, compressus, c. 52 cm longus, internodiis 2.2—2.7 cm longis, radicibus singulis vaginam supra medium et supra inflorescentias oblique perforantibus, patentissimis. *Folia* patentia, oblongo-ovalia ad oblonga, suboblique obtusa, vix bilobula, basi brevissime contracta conduplicataque, dorso carinata, sicco coriacea, c. 5—7.4 cm longa, 2.4—2.8 cm lata; vaginae tubulosae, internodia subaequantes, valde compressae, dorso anticeque carinatae, ensiformes, apice truncatae, sicco longitu-

dinaliter prominenter nervosae, c. 0.75—0.9 cm latae. *Inflorescentiae* vaginam dorso fere in medio perforantes, 2 superimpositae, novella infima, paten-tissimae, breves, multiflorae, diu flores gignentes, pedunculo c. 3.5—4 cm longo, vaginulis c. 4 tubulosis ensiformibus in apicem liberum productis superioribus accrescentibus donato, rachide ad c. 10 cm longa, cum bracteis sicco c. 1—1.2 cm lata, internodiis 0.25—0.35 cm longis, facie florem versus spectante excavatis. *Bractee* alternatim bifariae, subpatentissimae, in $\frac{1}{3}$ — $\frac{2}{5}$ partibus supra basin obtusangule incurvae, dorso continuae, falcato-triangularae, cymbiformi-concavae, apicem versus angustatae, obtusae, interdum subapiculatae, basi dorso excavatae, superne valde carinatae, c. 0.7—0.8 cm longae. *Flores* mediocres. *Sepalum dorsale* lineare, apicem versus angustatum, acutum, canaliculatum, 5nervium, c. 1.8 cm longum, 0.2 cm latum. *Sepala lateralialia* ad pedem gynostemii decurrentia, oblique linearia, apicem versus angustata, acuta, praesertim basi sursum falcato-incurva, canaliculata, 5nervia, inexplanata, c. 1.85 cm longa, 0.27 cm lata. *Petala* in bene $\frac{1}{3}$ supra basin subfalcato-incurva, linearia, acuta, 3nervia, c. 17 cm longa, 0.175 cm lata. *Labellum* apici pedis gynostemii insertum, oblique erectum, 3lobum, basi breviter late rotundato-saccatum, subtus medio obtusangule constrictum, callo mediocri intus in flexu, fascia longitudinali papillosa postice a callo in calcar decurrente, ab apice usque ad apicem ovarii c. 0.6 cm, usque ad apicem sacci bene 0.8 cm longum, ab apice loborum lateralium usque ad apicem sacci c. 0.675 cm metiens, explanatum ambitu subovato-ovale, c. 0.76 cm longum, 0.56 cm latum; lobi laterales basi latissimi, erecti, gynostemium bene superantes, apice libero porrecti, late falcato-trianguli, margine postico rotundati et superne minutissime erosuli, obtusi; lobus intermedius a lateralibus sinibus obtuse acutis sejunctus, porrectus, incurvus, carnosus, subtus convexus, oblique subclavatus, e basi triangula concava marginibus rotundato-excisa in apicem carnosum lateraliter compressum a latere visum triangulum subtus rotundatum supra rectum basi supra rectangule in unguem contractum incrassatum, obtusus, omnino papillosus, c. 0.24 cm longus, apice incrassato 0.175 cm longo. *Gynostemium* breve altum, truncatum, absque anthera 0.16 cm longum, basi sensim in pedem breviusculum latum quadrangulum apicem versus paululum dilatatum concavum 0.16 cm longum attenuatum, cum pede a latere visum oblique quadrangulum, clinandrio leviter concavo. *Stigma* alte excavatum, transversum. *Ovarium* pedicellatum, sparse minute furfuraceo-puncticulatum, c. 0.8 cm longum. *Capsula* brevissime pedicellata, gynostemio apiculata, elongata, late sexalata tricostataque, tota c. 7.4—8.2 cm longa, pedicello c. 0.35 cm, rostro c. 0.2—0.3 cm longo, sicco c. 0.9 cm diam.

Central Seran: Kampong Hatoeolo, 600 m, forest (L. RUTTEN n.1552, leg. KORNASI 6 July 1918, "flowers yellow").

One of the numerous allies of *Th. arachnites* RCHB. F. and well characterized by the elongate stem and distinct midlobe.

Description from herbarium.

Thrixspermum (sect. Orsidice) **amplexicaule** RCHB. F. Xen. Orch. II (1874), 121; etc.

Ambon: Goenoeng Haroemeseng, 0—100 m, brambles (L. RUTTEN n.1080, 2 April 1918).

SARCOCHILUS R. BR.

Sarcochilus (sect. Eusarcochilus) **platyphyllus** F. v. MUELL. Descr. not. Pap. pl. IX (1890), 60; etc.

North Seran: River-basin of the Wai Koea, c. 50 m, forest, abundant (L. RUTTEN n.37, leg. KORNASI 25 May 1917, "vern. name *laboea*, flowers white dotted redbrown"). Wahai, Goenoeng Pemali, 0 m (L. RUTTEN n.747, leg. KORNASI 5 January 1918, "flowers yellow, lip white"). Near Seleman, forest (L. RUTTEN n.2020, 4 February 1919, "flowers yellow with brown-red dots, one segment white").

East Seran: Wai Bolifar, 100—200 m, forest (L. RUTTEN n.2140, 9—10 April 1919, "flowers yellow dotted red-brown").

Sarcochilus (sect. Ascochilus) **Zollingeri** RCHB. F. in WALP. Ann. VI(1861), 500; etc.

Central Seran: Goenoeng Moerkele, 2000—2500 m, forest, limestone (L. RUTTEN n.1496, leg. KORNASI 1 July 1918, "flowers yellow lip white").

Sarcochilus (sect. Perspicilla)? **Treubii** J. J. S. in Bull. Jard. Bot. Buit. 2e sér. III (1912), 14.

North Seran: Wahai, Pasir Poetih, 0 m, on a tree at the shore, few (L. RUTTEN n.194, leg. KORNASI).

The material at hand was not sufficiently good for a certain determination.

The above species and *S. Taeniophyllum* J. J. S., perhaps also *S. phyllorhizus* F. v. MUELL. constitute a well defined group. I utilise this opportunity by proposing the following section.

Sect. **Perspicilla**. Leafless. Stem very short with much flattened roots. Inflorescences elongate, lax, many-flowered. Flowers delicate, rather small. Lip 3lobed with a short saccate pouch, erect side-lobes and a very short thick hairy midlobe, the pouch with a callus or scale inside, column short, with a distinct foot. Anther on both sides with a threadlike appendage which at the tip is sometimes broadened in the way of a little fan and so keeps the anther in its place.

It occurs to me that when also the pollinarium will be known, the necessity of a separate genus will prove inevitable.

LUISIA GAUD.

Luisia confusa RCHB. F. in WALP. Ann. VI.(1861), 621; etc.

Seran (W. RUINEN, liv.pl.cult. in Hort.Bog. sub n.15).

East Seran: Waroe, 0 m, coast-vegetation (L. RUTTEN n.980, leg. KORNASI 6 February 1918, "flowers light yellow, lip violet"). Wai Bolifar, 100—200 m, forest, epiphytical (L. RUTTEN n.2141, 9—10 April 1919, "flowers dirty brownish yellow").

PHALAEOPSIS BL.

Phalaenopsis amabilis BL. Bijdr. (1825), 294; Tab. f. 44; etc.

var. **moluccana** SCHLTR. in FEDDE Rep. X (1911), 193.

West Seran: Isle of Boana, 0—200 m (L. RUTTEN n.1319, leg. KORNASI 13 May 1918). Between Hatoesoea and Kairatoe, 0 m, coast-vegetation (L. RUTTEN n.1616, 2 September 1918). Piroe, 0—100 m, coast-vegetation (L. RUTTEN n.1185, leg. KORNASI 28 May 1918).

North Seran: Wai Hoehoe, 0—100 m, forest, bank vegetation (L. RUTTEN n.2087, 19 February 1919). Near Seleman, 0—100 m, coast vegetation (L. RUTTEN n.2023, 4 February 1919).

Phalaenopsis amboinensis J. J. S. in Bull. Dép. Agric. Ind. Néerl. XLV (1911), 23.

West Seran: Wai Rioeapa, 100—150 m, forest, bank vegetation (L. RUTTEN n.1603, 27 August 1918, "flowers streaked brown and white"). North of Melilia, 550—750 m, forest (L. RUTTEN n.1633, 4 August 1918, "flowers white with brown-red specks and greenish yellow tip; lip with 2 laciniae dotted orange").

South-east Seran: Wai Takoeman, 100—200 m, bank vegetation (L. RUTTEN n.1006, leg. KORNASI 13 February 1918, "flowers white with light red specks, lip yellow").

South Seran: Wai Tara, forest, bank vegetation (L. RUTTEN n.2048, 9 March 1919, "flowers white with flesh-red specks").

In n. 2048 the dry leaves were up to 26 cm long and 9.5 cm broad, the inflorescences well branched and 52 cm long. In the cultivated specimens I saw the inflorescences were short and very few-flowered.

VANDA R. BR.

Vanda saxatilis J. J. S. in Bull. Jard. Bot. Buit. 3e sér. VIII (1926), 66; etc.

West Seran: Poeloe Tiboës, 0 m, strand vegetation (L. RUTTEN n.1269, leg. KORNASI 9 March 1918, "flowers light yellow, lip white").

North Seran: Kali Pohon Lima, 0 m, abundantly (L. RUTTEN n.199, leg. KORNASI 5 October 1917, "flowers yellow, lip white").

South-east Seran: Oson, 0 m, coast-garden (L. RUTTEN n.851, leg. KORNASI 19 January 1918, "flowers light green, lip white; vern. name *loesimoe apoedin*").

VANDOPSIS PFITZ.

Vandopsis lissochiloides PFITZ. in ENGL.u.PRANTL, Nat.Pflanzenf. II,6 (1889), 210; etc.

West Seran: Between Eti and Kaibobo, 0—100 m, forest, strand (L. RUTTEN n.1655, 15 September 1918). Telaga, 0 m, coast, on serpentine rock (L. RUTTEN n.1195, leg. KORNASI 30 April 1918).

ASCOGLOSSUM SCHLTR.

Ascoglossum purpureum SCHLTR. Orch.D.N.Guinea (1913) 975.—*Saccolabium purpureum* J.J.S. Bull.Inst.Bot.VII (1900), 4; in Ic.Bog.II (1903), 115, t. CXXIII A.

West Seran: Goenoeng Makone, 500 m, forest (L. RUTTEN n.1254, leg. KORNASI 5 May 1918, "flowers dark red, lip yellow").

North-west Seran: Wai Hanoea, 250—400 m, forest (L. RUTTEN n.1790, 15 October 1918).

Central Seran: Maoti-pass, southern slope, 600—800 m, forest (L. RUTTEN n.1986, 30 January 1919, "flowers dark red").

R. SCHLECHTER keeps upright this species next to *A. calopterum* SCHLTR.

SARCANTHUS LNDL.

Sarcanthus subulatus RCHB. F. in Bonpl. V(1857), 41; etc.

East Seran: Wai Bolifar, 100—200 m, forest (L. RUTTEN n.2138, 9—10 April 1919).

TRICHOGLOTTIS BL.

Trichoglottis geminata J.J.S. Orch.Amb.(1905), 106; etc.

West Seran: Wai Nala, 150—300 m, forest, bank vegetation (L. RUTTEN n.1593, 26 August 1918, „sepals and petals orange yellow with violet transverse bars, lip white with rosy transverse streaks”).

South Seran: Wai Pita, 150—200 m, forest (L. RUTTEN n.2082, 17 February 1919, “sepals and petals greenish yellow with transverse red lines, lip white with transverse rosy speckles).

Another species of *Trichoglottis* was collected but the flowers were missing.

POMATOCALPA BREDÁ

Pomatocalpa linearipetalum J. J. S. n.sp.

Caulis brevis, radicans, c. 9 cm longus, 9folius. *Folia* approximata, patentissima, loriformia, apice late oblique obtusa, late retusa, lobis rotundatis, basi angustata conduplicataque, costa media dorso prominente, sicco rigide coriacea, c. 23—31 cm longa, 5.2—3.6 cm lata; vaginae internodia

longe superantes, basi tubulosae, apice conduplicatae recurvulaeque. *Inflorescentiae* vaginam dorso perforantes, elongatae, 1 ramum emittentes, dense multiflorae, pedunculo brevissime puberulo, c. 18—18.5 cm longo, vaginulis c. 3 tubulosis donato ramulo apicali c. 14—20 cm longo, rachide 11.5—15 cm longa, 5angulata, interrupte costata, indumento pedunculi. *Bractae* persistentes, patentissimae vel recurvae, anguste triangulae, acuminatae, acutae, concavae, undulatae, carnosulae, ad c. 0.5—0.65 cm longae, 0.175—0.24 cm latae, superiores decrescentes. *Flores* non resupinati, macerati c. 1.15 cm longi. *Sepalum dorsale* cum ovario angulum obtusum faciens, sublineare, rectum, parte inferiore convexum, superne concavum, papillosum, 3nervium, carnosulum, c. 0.7 cm longum, 0.15 cm latum. *Sepala lateralialia* ad pedem gynostemii brevissimum decurrentia, sub calcari sita, oblique lineari-oblonga, obtusa, 3nervia, carnosula, c. 0.5 cm longa, 0.16 cm lata. *Petala* porrecta, divergentia, oblique linearia, subfalcata, obtusa, convexa, 1nervia, carnosula, c. 0.55—0.6 cm longa, c. 0.1 cm lata. *Labellum* 3lobum, calcaratum, a loco insertionis usque ad apicem lobi intermedi 0.34 cm longum, a margine superiore loborum lateralium usque ad apicem calcaris bene 0.5 cm metiens; lobi laterales ad faucem calcaris siti, paralleli, oblique quadranguli, margine postico pedi gynostemii adnati, intus antice incrassati et ante basin lobi intermedi contigui; lobus intermedius subreflexus, cum margine antico loborum lateralium angulum subrectum, cum calcari angulum acutum faciens, angulato-suborbicularis, apice truncatus, leviter concavus, subtus convexus, papillosus, carnosus, c. 0.17 cm longus, fere 0.2 cm latus; calcar cum pede gynostemii angulum obtusum faciens, incurvulum, oblongum, subcylindricum, obtusum, dorso usque ad apicem ovarii c. 0.4 cm, antice usque ad basin lobi intermedi 0.225 cm longum, 0.17 cm latum. *Gynostemium* (fecundatum) 0.15 cm longum, pede abbreviato, cum ovario angulo recto faciente. *Ovarium* 6sulcatum, papillosum, c. 0.34 cm longum. *Capsula* juvenilis reflexa, puberula, c. 2 cm longa.

Central Seran: Kampong Hatoeolo, 600 m, forest (L. RUTTEN n.1542, leg. KORNASI 5 July 1918, "flowers light red, lip white").

A near ally of *P. Kunstleri* J. J. S. but with the inflorescences provided with only one branch, larger bracts, larger flowers, linear petals. *P. leucanthum* SCHLTR. is another near ally but this has smaller leaves, unbranched inflorescences, smaller white flowers, an acute midlobe. *P. Merrillii* SCHLTR. which was enumerated by OAKES AMES as *Cleisostoma Kunstleri* HOOK. f. and in some respects is very near *P. linearipetala* differs, according to AMES' description, in the paniculate inflorescence, smaller flowers and scrotiform spur. All these plants should be compared.

Pomatocalpa ?marsupiale J. J. S. in Nat. Tijdschr. Ned. Ind. LXXII (1912), 35; etc.

North-west Seran: Wai Beka, 0—100 m, forest, bank vegetation, epiphytcal (L. RUTTEN n.1760, 7 October 1918, "flowers green, lip yellow").

I think this specimen is to be reckoned to *P. marsupiale*.

ROBIQUETIA GAUD.

Robiqueta viridirosea J. J. S. in Bull. Jard. Bot. Buit. 3e sér. II (1920), 121
North Seran: Wahai, abundant (L. RUTTEN, without number leg
KORNASI 9 July 1918; also liv. pl. cult. in Hort. Bog. sub n.57).

Robiqueta dentifera J. J. S. n. sp.

Caulis elongatus, pars adest 34 cm longa, internodiis 3.5—4.5 cm longis. *Folia* patentia, basi semitorta, loriformia, apice valde oblique rotundato-biloba, basi leviter angustata, dorso carinata, sicco rigide coriacea, c. 21 cm longa, 3.1—3.7 cm lata; vaginae internodiis subaequilongae vel vix longiores, tubulosae, compressae, antice posticeque acute carinatae, apice antice excisae recurvulae et conduplicatae. *Inflorescentiae* vaginam dorso ad basin perforantes, pauciramosae, totae c. 29 cm longae, pedunculo c. 10 cm longo, vaginulis c. 4 brevibus ample infundibuliformibus dorso carinatis donato, ramis 2 subpatentissimis, incurvis, densissime valde multifloris, ad c. 8.5 cm longis, vaginula concava sicco ad c. 1.35 cm longa ad basin, racemo terminali c. 14.5 cm longo. *Bractee* reflexae, e basi triangula longe acuminatae, marginibus incurvis subulatae, sicco c. 0.7 cm longae. *Flores* quaquaversi, c. 1.15 cm longi, sepalis dorso furfuraceis. *Sepalum dorsale* incurvulum, valde concavum, explanatum late ellipticum, apice leviter contractum, obtusum, basi distincte contractum, 3nervium, c. 0.5 cm longum, bene 0.3 cm latum. *Sepala lateral*ia oblique oblongo quadrangula, apicem versus margine conspicue rotundato dilatata, margine apice incurvulo brevissime contracta, obtusa, concava, 3nervia, c. 0.5 cm longa, basi 0.2 cm, superne 0.3 cm lata. *Petala* oblique oblonga, obtusa, 3nervia, c. 0.5 cm longa, fere 0.2 cm lata. *Labellum* basi pedi gynostemii brevissimo adnatum, 3lobum, calcaratum, extus parce furfuraceum, ab apice lobi intermedii usque apicem ovarii 0.575 cm, usque ad apicem calcaris 0.9 cm longum, parte pedi gynostemii adnata 0.1 cm longa; lobi laterales ad faucem calcaris erecti, late oblique subrotundato-quadranguli, basi intra marginem intus dente oblique triangulo carnosio porrecto instructi, basi 0.275 cm lati; lobus intermedius porrectus, incurvulus, carnosus, subtus convexus, supra leviter concavus, obtusus, apiculo minimo incurvulo lineari, c. 0.25 cm longus; calcar deorsum spectans, cum ovario angulum acutum faciens, parte inferiore subrecta, infundibuliformi, apice conspicue incurvo, ovali, obtuso, totum usque ad apicem ovarii 0.775 cm longum. *Gynostemium* brevissimum, altum, usque ad apicem rostellii 0.24 cm longum, clinandrio concavo, lamella alta longitudinali dimidiato, pariete postico triangulo-producto incurvuloque, auriculis latissimis triangulis apiculatis. *Rostellum* porrectum, late oblongum, alte in lacinias 2 rectas partitum. *Ovarium* grosse furfuraceum, c. 0.3 cm longum.

North-west Seran: Between Moerikaoe and Riring, 500—1000 m, forest, epiphytcal (L. RUTTEN n.2171, 4—5 May 1919, "flowers flesh-colored, streaked").

In the shape of the flowers much resembling *R. camptocentrum* (SCHLTR.) J. J. S. from New Guinea, but easily recognizable by the teeth of the side-

lobes of the lip. Moreover the inflorescences are branched and the bracts longer than in the said species.

Description from a dried specimen.

Still another species of *Robiquetia* was collected but the only inflorescence was partly burnt when being dried, leaving no open flowers.

Utrecht, April 1928.

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